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THE PRESENT STATUS OF THE DIAGNOSIS AND TREATMENT OF VESICAL TUMORS *

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My study has comprised 117 cases of vesical tumor. The frequency of occurrence according to age was as follows:

Ages.	Cases.
25 to 30	3
31 to 35	8
36 to 40	4
41 to 50	22
51 to 60	37
61 to 70	26
71 to 80	16
Not stated	1

In twenty-one, or 17 per cent. of the cases, the tumors were benign papillomas, and the rest, 83 per cent., malignant (carcinoma ninety-six cases, sarcoma one case).

The three patients under 30 years of age had benign papillomas; two have been cured by fulguration. The third case was benign at the beginning, but later (at the end of three years) became malignant, the patient dying with a large metastatic growth in the abdominal wall.

Seven, or 33 per cent., of the twenty-one patients with benign growths were under 40 years of age, and one was over 59. Six, or 6.2 per cent., of the ninety-seven patients with malignant growths were under 40, one was 30, and fifteen, or 15.4 per cent., were under 50 years of age.

The striking thing about these figures is the relative infrequency of benign papillomas of the bladder and the fact that unless the disease is cured at operation it almost always finally becomes malignant. A striking case of this character is that of J. D., aged 65, admitted Aug. 5, 1901, with hematuria. The cystoscope showed a large tumor on the right side of the bladder which was removed by a suprapubic operation with a Paquelin cautery. Cystoscopy eighteen months later showed no recurrence, but a second cystoscopy seven months afterward showed a papillary tumor on the opposite side of the bladder, the site of the operation being entirely healthy. This recurrence was removed by a clamp and cautery as before, and subsequent cystoscopies showed an apparent complete cure; but two years later recurrences came on the anterior wall of the bladder in the site of the suprapubic incision, and pieces removed with the rongeur cystoscope showed malignant changes in the tumor present, and the patient finally died of cancer nine years after the first operation. Another case is that of A. L., aged 26, admitted Feb. 5, 1909, with a large villous papilloma on the right side of the bladder which was removed with an operating cystoscope, the patient being afterward treated by intravesical injections of 5 per cent. resorcin, which was then being extensively used abroad. In this case the tumor continued to grow, and two subsequent suprapubic operations were performed, each followed by recurrences, all of which showed, under the microscope, a benign papilloma. In 1911 the patient developed a malignant growth in the prevesical space and died of carcinoma, March 17, 1912, at the age of 30.

It is difficult to explain the remote benign recurrences, especially as in some of the cases every care was taken to prevent implantation of tumor particles at operation by going wide of the tumor, cauterizing its entire surface with a hot-air cautery or with strong resorcin, removing it with a wide margin and protecting the external and vesical suprapubic wound during operation so as to prevent tumor infection. Yet, notwithstanding all this in several instances recurrences in another part of the bladder and sometimes in the suprapubic region occurred.

An interesting fact brought out by a study of these cases is that malignant vesical tumors were not due to a primary carcinoma of the prostate, which has been held by some authors to be the rule, careful examination showing that the prostate and seminal vesicles were entirely free from any evidence of carcinoma. There have been, of course, frank cases of carcinoma of the prostate with subsequent intravesical outgrowths in the shape of localized or extensive bladder involvement, but in all there have not been more than ten such cases, and they have been excluded from this list of bladder tumors as irrelevant. Our cases have surely demonstrated conclusively that tumors of the bladder do not spring originally from tumors of the prostate and seminal vesicles except in rare instances, and then usually late in the disease.

TREATMENT EMPLOYED AND RESULTS

The operations may be classed as follows:

A. Suprapubic excisions, forty-seven cases.
B. Fulguration, nineteen cases.
C. Suprapubic drainage, twenty-two cases.
D. Suprapubic partial excision with destruction of the base by cautery or fulguration, five cases.
E. No treatment, twenty-eight cases.

CLASS A. SUPRAPUBIC EXCISIONS

In this class there were forty-seven patients who were treated by excision of the tumor through a suprapubic wound. Of these there were thirty-five in whom the

* Chairman's address before the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

tissues were shown to be malignant by microscopic examination, and two in which the diagnosis of malignancy was clinical but unquestionable; 80 per cent. of the cases at least were therefore cancer. There were twelve patients in whom the diagnosis was "benign"; eight of which were microscopic, and four clinical diagnoses. Four of these patients have since suffered with recurrences which have been shown to be malignant, and in another case one portion of the tumor removed suggests a beginning malignancy, leaving only seven cases, or 15 per cent., continuously benign.

Character of Operation.—These forty-seven cases, in which suprapubic excision of the tumor was carried out, may be divided into three groups according to the extent of the operation performed.

Group 1. Excision with pedicle and a portion of the vesical mucosa, twenty-three cases. The operation here consisted generally in exposing the tumor by long median suprapubic incision and excellent retraction, every effort being made not to touch or disturb the tumor, which in some cases was first cauterized with hot-air cautery or with resorcin to kill the surface and prevent implantations, and then clamped across its pedicle close to the bladder, traction applied and one or more clamps placed across the pedicle higher up so as to include normal vesical mucous membrane; division of the pedicle below the deepest clamp by means of the Paquelin cautery, and hemostasis by means of clamps which were sometimes ligated, and sometimes left in place. Often the vesical wound, left after removal of the tumor, was thoroughly cauterized with the Paquelin cautery. Among these twenty-three cases there were only nine benign. Four of the benign afterward showed malignancy and one patient died of embolism soon after operation, thus leaving four benign cases, in one of which the patient suffered from an extensive benign recurrence; one patient has been lost sight of, and two have been cured now for four years each.

The results obtained in these nine benign cases are extremely bad, not nearly so good as is now obtained by fulguration, and they show in a striking way the inadequacy of the suprapubic excision even when great care is taken to avoid implantations, and to thoroughly remove the tumor after clamping its pedicle. One of the two cases, in which the patient is now well four years after operation, is extremely interesting in that it was one of the most unpromising cases of all, the bladder being almost completely filled with papillomas.

These were destroyed by a Paquelin cautery through a suprapubic incision, very little normal mucous membrane being left.

Microscopic examination of tumors showed all to be typically benign papillomas, except the largest specimen, in which an area suggesting early malignant changes was present. This case shows in a striking way the value of the cautery and probably also of resorcin in preventing vesical recurrences and prevesical implantations in cases of multiple papillomatosis.

Malignant Cases.—There were fourteen cases in Group 1 which were shown to be malignant, and in only two has the operation resulted in a cure.

CASE 2.—A. S., aged 47, No. 21035, had a large papilloma about the size of an orange with its pedicle near the left ureteral orifice. It was clamped and excised with an area of mucous membrane, July 26, 1907. Patient writes under date of June 13, 1913, (six years later) that he is entirely well. Microscopic examination revealed an infiltrating papillary carcinoma.

CASE 3.—The third case is quite remarkable. G. L. A., aged 69, admitted May 11, 1911, complaining of difficulty and frequency of urination and pain in the bladder, for several weeks had been treated at home by perineal exposures to the Roentgen ray with a view of curing the prostatic obstruction. Examination showed an enlarged prostate, and a large red fissured rough tumor springing from a pedicle external to the right ureter. Suprapubic operation was performed May 19, 1911. The tumor was found to be necrotic and friable, and when its pedicle was clamped the whole mass came away, leaving a somewhat rough granular reddish base which was thoroughly cauterized with the Paquelin cautery. Examination of the tissues removed revealed a small hard growth in the midst of necrotic tissue, 2 by 3 cm. in size, and microscopic examination showed a papillary carcinoma. Cystoscopy four months later showed the bladder entirely healthy. Two years after operation the patient reports that he is entirely well.

This case is remarkable in showing an extensive necrosis of the tumor probably produced by Roentgen-ray treatments to which the patient had been subjected, and is another example of the efficiency of the cautery in the destruction of the base of these tumors.

The other twelve cases are a dismal recital of recurrence and death, more or less promptly, after the operation, with the exception of one case in which the bladder shows no recurrence, but the patient is suffering from a metastatic carcinoma of the right femur.

Group 2. Four cases in which the excision of the tumor was accompanied by a more extensive removal of the adjacent vesical mucous membrane. In all these cases the tumors were thought to be benign, but microscopic examination after removal showed three to be malignant, and in the fourth (thought to be benign clinically) the patient has since died of metastatic cancer. Two of these cases promptly recurred, one patient dying of a very extensive prevesical carcinoma, and the other carcinomatous metastases to the various bones.

One patient, J. H. L., is well now two and one-half years since the operation in which a globular tumor 2 inches in diameter was removed from the right lateral wall of the bladder.

In the fourth case, that of J. M., there was no local recurrence, but the patient died of cancer of the stomach and liver two and one-half years after operation. There is therefore only one of these four patients who has been apparently cured by this semiradical operation.

Group 3. Twenty cases with more or less extensive resection of the entire thickness of the bladder wall adjacent to the tumor. The extent of the resection varied from an area 1 or 2 inches in diameter to half the bladder in two cases, and almost all of the bladder in one case. In the latter (E. A. H.) the operation was performed with no hope of cure, but to relieve the patient of fearful pain of which he was suffering, which had not been relieved by double nephrostomy with diversion of the urine from the bladder. The abdomen was opened and all of the bladder excised with the exception of the trigonal portion. The patient experienced wonderful relief and lived six months, dying from metastases which were present before operation.

Among these twenty cases there were only three (L. S., H. M. D. and E.) which were benign although they appeared malignant with the cystoscope. In these three cases the tumor was excised with a wide area of healthy bladder wall through a suprapubic incision a year ago, and both patients report that they are well.

Seventeen cases were of cancer, and of these seven were found to be practically hopeless at operation, the cancer

having already extended beyond the confines of the bladder.

The other eleven may be considered to have been fairly favorable cases.

(Cases 4, 5, 6, 7 and 8 have been omitted here. They were all single tumors and completely resected with bladder wall; all apparently cured one to ten years.)

CASE 9.—E. P. T., No. 594, aged 40, was admitted April 4, 1904, with two small papillary tumors, one external to each ureter, which were removed with the Paquelin cautery through a suprapubic incision. One year later patient returned with hematuria. Cystoscope showed a small vesical tumor at the lower angle of the suprapubic incision, and two small pedunculated tumors on the left lateral wall. No recurrence where tumors had been previously excised. All three tumors removed by clamp and cautery. Dec. 14, 1907: Patient says that for eighteen months he was entirely well, since which time there was hematuria. Cystoscopy revealed several recurrent vesical tumors. Suprapubic operation, excision with an area of bladder wall of several large tumors on the posterior wall of the bladder, a small tumor back of the right ureter and a small tumor back of the left ureter. Good result. Examination, June 18, 1911: No recurrence of bladder tumors. Patient now suffering with a small obstructing median prostatic bar (which was then removed with "punch" operation). Result good. June 4, 1913, a letter states that the patient is entirely well. Microscopic examination of tumors revealed cancer. Time since last operation, over five years. September, 1913, cystoscopic examination shows an infiltration in scar external to left ureter; a specimen removed by "cystoscopic rongeur" shows cancer, and laparotomy shows inoperable infiltration behind bladder. It is now nine years since first operation and six years since excision of last cancer.

CASE 10.—H. J. S., No. 2038, aged 58, was admitted Dec. 1, 1908. Cystoscopy revealed tumor in the left half of the bladder. Suprapubic resection of wide area of left lateral wall encircling an ulcerative tumor 2 by 4 cm. in size. Bladder closed. Convalescence good. June 5, 1912, a letter states that the patient has remained entirely well, now five years since operation. Microscopic examination of tumor shows small round and spindle-cell sarcoma.

CASE 11.—A. P. Y., No. 3286, aged 68, admitted September 17, 1912. Had been treated by fulguration. Cystoscopy revealed a fairly large sessile tumor on the anterior wall covered with grayish exudate. Suprapubic and intra-abdominal operation, resection of vertex of bladder with peritoneum, almost half of the bladder being removed. Closure, no leakage. Satisfactory convalescence. June 1, 1913, a letter states that the patient feels entirely well. Microscopic examination of tumor removed revealed cancer.

CASE 12.—H. S. T., No. 3124, aged 57, was admitted March 12, 1912, with large flat irregular tumor on the right lateral wall of the bladder. Suprapubic resection of most of the right lateral wall of the bladder with a wide area surrounding the tumor. Ureter not transplanted. Tedious convalescence; very bad heart and extremely fat man. Examination Nov. 9, 1912, revealed the patient well with the exception of a contracted bladder and pyuria. January, 1913, chills and fever. Right kidney enlarged and tender. May 16, 1913, patient died of uremia and heart-disease. No necropsy obtained. No evidence of recurrence of tumor. Microscopic examination of specimen removed at operation showed carcinoma.

CASE 13.—M. B. S., No. 25952, aged 72, was admitted May 16, 1910. Cystoscopy revealed an irregular tumor occupying the middle and left side of the trigon. Suprapubic excision of tumor with a good margin of mucous membrane and a portion of the muscle and the left ureter, the rest of which was transplanted. (Operation apparently not very radical.) Convalescence satisfactory. Patient well one year, but died of recurrence in twenty months. Microscopic examination of specimen showed an infiltrating carcinoma.

CASE 14.—L. P. W., No. 26026, was admitted April 5, 1907. Cystoscopy revealed an irregular red tumor covering the left ureter. Suprapubic operation; tumor 3 by 2 by 2 cm. in size in the left corner of the trigon. Excised with a wide area of mucous membrane, including the end of the ureter, the rest of which was transplanted. Investigation showed an infiltration of the bladder wall externally to the line of excision. An additional area of bladder wall was then excised leaving an area about 5 cm. in diameter. Satisfactory convalescence. Jan. 14, 1908, and Dec. 23, 1909, letters stated that the patient was well. A letter, December, 1912, stated that the patient had had slight hematuria and cystoscopy showed recurrent tumor at the base of the bladder.

A review of the foregoing cases given in detail shows therefore only three recurrences, and at the time of operation examination showed in one an infiltration which required a second excision of bladder wall on account of the discovery of invasion of the bladder muscle. The case was therefore not a very hopeful one. Many of the other cases also required a very extensive resection. In one case half of the bladder was removed, and the results obtained are indeed extremely gratifying, and show, I believe, the importance of resection of the bladder wall whenever a suprapubic operation is carried out for vesical tumors. The results obtained by resection are, as indicated, far superior to those obtained by excision of the tumor with the pedicle and adjacent vesical mucosa when this operation seemed thoroughly complete as indicated in the twenty-three cases in Group 1.

CLASS B. FULGURATION

These patients were treated by the high-frequency current, the Oudin current or the d'Arsonval current.

There are twelve benign cases in this class in which the treatment was given by means of the ureter catheterizing cystoscope, the electric spark being applied through an insulated copper or steel wire. The amount of current, the length of treatment and the number of applications vary in different cases. The results obtained have been so brilliant that it seems desirable to refer briefly to each case.

CASE 15.—A., aged 30, who had undergone suprapubic excision of a small tumor three years before, had been bleeding profusely, and was in a desperate condition. Hemoglobin 16 per cent. Cystoscope showed a small bleeding tumor near the right ureteral orifice. Vein-to-vein transfusion from his wife was performed, hemoglobin increasing to 45 per cent. Tumor was then treated by high-frequency spark; disappeared with one application; bleeding ceased immediately. Examination six months later, entirely well. Bladder normal.

CASE 16.—E. L. B., No. 3429, aged 47, was admitted Dec. 26, 1912, with a tumor 1½ inches in diameter with pedicle springing from the region of the right ureter. Treated five times with the ureter catheter cystoscope and high-frequency spark. Tumor then disappeared. Cystoscopy revealed a normal bladder. Letter four months later reported patient entirely well.

CASE 17.—J. A. C., No. 3373, aged 59. Cystoscopy revealed seventeen small tumors in various parts of the bladder following a suprapubic operation eighteen months previously for removal of one tumor. Prostatic hypertrophy. Tumors destroyed by ten treatments with high-frequency spark. Cystoscopy then revealed a normal bladder and prostatectomy was carried out. Six months later, examination showed that the patient was entirely well.

CASE 18.—J. T. C., No. 3821, aged 66, was admitted Sept. 12, 1912, with a small tumor in the right wall of the bladder. Prostatic hypertrophy. Was given three treatments with the high-frequency current, after which the tumor disappeared completely. Examination June 5, 1913: Bladder normal. Prostatic hypertrophy of moderate size. Residual urine, 80 c.c.

CASE 19.—J. F., No. 3093, aged 45, was admitted Feb. 10, 1912, with hematuria of two years' duration. Cystoscope

showed six large papillomatous tumors in the left half of the bladder, varying from 1 to 1½ inches in diameter and covering almost all the left half of the bladder, including the ureter. The case seemed hopeless. At first little effect was seen; then following vigorous treatment with a long spark the tumors began to disappear rapidly, and in three months the bladder was perfectly normal. During the summer and fall of 1912 occasional treatments were given to very small remnants of tumor. Repeated cystoscopic examinations during the past six months show no recurrence. A really marvelous result.

CASE 20.—McD., aged 45, was admitted, June, 1911, with small papillary tumor obscuring the left ureteral orifice which disappeared entirely under three vigorous high frequency treatments. Cystoscopy one year later showed no recurrence.

CASE 21.—M., aged 35. Cystoscopy revealed two tumors, each about 1 inch in diameter, one in the region of the right ureter and the other slightly posterior to it on the lateral wall. Treated by high-frequency spark twice a week for six weeks. Examination then showed that both tumors had disappeared. Examination five months later shows no recurrence. Patient entirely well.

CASE 22.—P., aged 30, was admitted, June, 1912, with hematuria. Cystoscopy revealed a papillary tumor about 1 inch in diameter in the region of the right ureter, and after four treatments the tumor entirely disappeared and examination six weeks later showed no recurrence. Patient still well.

CASE 23.—G. S., aged 53, was admitted, Feb. 13, 1912, with hematuria of six months' duration. Cystoscopy revealed a large papillary tumor mass which covered the whole left lateral wall of the bladder. A piece of tumor removed with the rongeur showed a benign papilloma. High-frequency treatment given, first twice weekly and later once a week with slow disappearance of all the papillomas. Last examination, May 31, 1913, showed slight edema of the bladder, but no tumor. About twenty-five treatments in all were given.

CASE 24.—W., aged 40, with a history of hematuria for several months, had a small raspberry-like tumor near the right ureteral orifice which was entirely destroyed by four high-frequency treatments at weekly intervals. Cystoscopy four months after last treatment showed the bladder entirely normal.

CASE 25.—W., aged 50, who had had hematuria over a period of four years, was very weak from loss of blood. Cystoscopic examination showed the entire bladder covered with vesical tumors which in portions were villous and in others smooth. A piece of tumor excised with the cystoscopic rongeur showed a benign papilloma. Treatment was begun with the high-frequency spark; improvement at first was slight, but after two months, following vigorous treatments given biweekly, tumor disappeared within a month. Examination six months after last treatment showed a normal bladder, no scar being visible.

In the foregoing eleven cases the treatment has been followed by apparent complete cure of the disease. In the one case the treatment has just been begun, and the tumors are still present.

Summary.—A review of these cases shows that five were under 40 years of age; four between 41 and 50 years, and only three over 50 years of age. In four cases the tumor was small and disappeared quickly with three or four treatments of the high-frequency spark. In five cases there were one or two tumors 1 inch or more in diameter and in several instances they were not villous, but were red and granular in appearance. Specimens when obtained, however, showed that they were benign. From seven to twenty-five treatments were required to cause a complete disappearance of the tumors. In three cases the papillomatous disease was very extensive, the tumors being large and covering half of the bladder in two cases, and apparently the entire bladder in one case. The cure of these apparently hopeless cases by means of the high-frequency spark is indeed a brilliant result, and shows a great superiority of the method over suprapubic excision in benign cases.

Malignant Cases.—The high-frequency current was used with unsatisfactory result in almost all cases which proved malignant; the following is a good example:

CASE 27.—B. V. L. C., aged 51, was admitted in the spring of 1912 with a papillary tumor in the right half of the bladder, external to the right ureteral orifice, not very villous in appearance, but no more malignant looking than some of the benign cases cured by the high-frequency spark. Ten applications some of which were very vigorous, resulted in the continued growth of the tumor, which was finally removed with a considerable portion of the right lateral wall of the bladder, and microscopic examination showed that it was definitely carcinomatous. Suprapubic resection of a portion of the bladder was then carried out, with success. The patient is now well, over a year later.

Another case also seemingly favorable resisted treatment by the high-frequency current. These two cases show very conclusively the importance of obtaining a good specimen for diagnosis early in the treatment, especially if the tumor fails to become smaller under high-frequency applications.

In four cases of extensive carcinomatous tumors of the bladder a partial destruction of the tumors, and improvement in frequency and difficulty of urination was obtained by the high-frequency current, but all of these patients have since died of metastases.

One case of carcinoma showed a wonderful disappearance under electrical applications.

In three cases splendid results have been obtained by the combined use of suprapubic excision, cauterization with the Paquelin cautery and high-frequency current.

(Reports of Cases 29, 30 and 31 are omitted for lack of space.)

It seems evident that it was possible to destroy malignant vesical tumors if the spark applied is strong enough, and with the bladder filled with air. This has caused me recently to apply fulguration through an open-air endoscopic cystoscope.

It is therefore evident that extremely thorough cauterization, whether done with the Paquelin cautery or by electricity, can successfully destroy vesical carcinoma, the principal need for care being to prevent implantations in the suprapubic wound and other parts of the bladder and to thoroughly destroy the base from which the tumors have been removed. Cystoscopy should be done frequently after the operation in order to detect and destroy recurrences early.

Summary of Cancer Cases.—Twelve cases have been treated by cauterization through the suprapubic wound. Three patients are apparently well, and one has a small recurrence. In one case the bladder was freed from carcinoma, but retrovesical metastases are now present. Five have died, and two are rapidly losing ground. That any beneficial results have been obtained in these apparently hopeless cases is indeed very satisfactory.

(On account of lack of space results in Classes C, D and E are omitted here.)

GENERAL SUMMARY

A review of these 117 cases of vesical tumor, 83 per cent. of which were malignant, shows that excision, as usually carried out, is utterly inadequate and followed by prompt recurrence in both benign and malignant cases. The cautery is an extremely valuable agent in conjunction with suprapubic or intraperitoneal operations, and when it has been thoroughly applied even in apparently hopeless cases some brilliant cures have been

obtained. Carcinoma of the bladder, except in very extensive cases, is best treated by suprapubic resection of the bladder, leaving a wide area of healthy wall around the tumor (the cautery used if possible), ureter transplanted if necessary, and the peritoneum excised when the tumor involves that portion of the bladder. Intraperitoneal operations are rarely necessary (except in tumors of the vertex and posterior wall), as an excellent view of the bladder can be obtained by an extensive median incision, wide separation of the recti muscles, upward displacement of the peritoneum, a long incision into the bladder and good retraction. The use of 50 per cent. resorcin, or alcohol, to kill any tumor particles

Fig. 1.—Gutta-percha sound carrying a large copper wire for vesical fulguration, without the use of the cystoscope.

which may have dropped into the bladder also seems desirable, but a better plan is to cauterize the tumor thoroughly before beginning the resection of the bladder. For benign tumors the treatment with the high-frequency spark seems thoroughly satisfactory, but should be vigorously applied, and for this purpose in extensive cases the fulgurating sound (Fig. 1) or the application of a strong spark through an open endoscope or cystoscope, the bladder being filled with air, may be very helpful. In apparently hopeless cases, destruction of the tumors

Fig. 2.—Cystoscopic rongeur closed, ready for introduction through the urethra.

and their bases and adjacent portions of the bladder wall by means of a Paquelin, hot-air or electric cauteries may occasionally give unexpected cures and brilliant results. Before applying treatment an adequate specimen should usually be obtained by means of the cystoscopic rongeur for microscopic diagnosis (Figs. 2 and 3). When one depends on examination of a few villi washed from the bladder or removed by small forceps a satisfactory diagnosis is often impossible and not infrequently erroneous. I have seen the diagnosis of benign papilloma made in

Fig. 3.—Cystoscopic rongeur open in position for grasping tumor in bladder. Later models are operated by scissors handles instead of the screw ratchet.

malignant cases from such small bits of tissue, which often contain only the superficial villi of the tumor.

As in cancer elsewhere, success depends much on early diagnosis. One cannot urge too strongly the advisability of cystoscopic examination in all hematuria cases. Some cases of cancer of the bladder show few symptoms. One should not wait for blood in the urine before urging cystoscopy.

Only three years ago many authorities considered it almost impossible to cure benign papilloma of the bladder, and in many clinics abroad operations on cancer of the bladder were practically discontinued. The demonstration of the marvelous efficacy of high-frequency electrical applications is one of the most brilliant and valuable additions to surgery in recent years, and the proof that resection of the bladder wall offers a good chance of cure in cancer shows that the surgery of vesical tumors far from being a hopeless field, is indeed one of great promise.

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ABSTRACT OF DISCUSSION

DR. HUGH CABOT, Boston: The whole question in regard to these bladder tumors turns on what we are to consider benign and what we are to consider malignant. We have all seen the pathologist undergo changes of heart, and I have come to believe that the opinion of the pathologist is quite as likely to be misleading as valuable, not because he cannot decide as to the nature of the specimen given him, but because these tumors undergo changes; especially is he likely to be wrong when dealing with portions of a tumor. Dr. Young has pointed out, and I think wisely, that in dealing with a tumor we must deal with large portions, that the little snips that we cut off with cystoscopic instruments are more likely to do harm than good; they are likely to be from the surface of the tumor, whereas it is the condition of the base that we should try to determine. We all know that the surface may long remain apparently benign, while the base is undergoing malignant change. It is not clear to me that we should regard these changes in the tumor as a degeneration. They seem to be progressive, and, in some cases at least, may be regarded as the natural history of these tumors. Again, we may get benign recurrences from malignant tumors and malignant recurrences from benign tumors. I have come to believe that our clinical view of these tumors is as likely to lead us to a correct surgical management as is the report of the pathologist, and that opinion can now be formed more readily by their behavior under the use of the high-frequency cauterization. It is of value not only in the destruction of the tumor, but also in the diagnosis of the type of growth. It appears from observations far more extensive than my own that the average malignant case behaves badly under high-frequency cauterization, although there are some rather prominent apparent exceptions, and that the benign cases show brilliant temporary results. How permanent the results are we are not in a position to decide.

At present there are two methods of election, the high-frequency cauterization and the radical, total resection of the portion of the bladder wall involved. I am much pleased to see Dr. Young advise the total resection of the bladder wall in the neighborhood of the tumor, because it has seemed that a lesser removal of the bladder wall is likely to be followed by recurrence. It seems to me that in all the apparently benign tumors the high-frequency current should be tried, and in the great majority of them it will prove efficient. There are benign tumors which must be dealt with radically owing to their size or the irritability of the bladder. The mere multiplicity of growths favors the high-frequency current as against radical operation.

In doing resection of the bladder it is important to include the peritoneal coat of the bladder if the tumor is located in the portion of the bladder covered by peritoneum.

DR. GRANVILLE MACGOWAN, Los Angeles: The majority of cases of tumor of the bladder come to the surgeon only because of loss of blood. Hematuria is not of itself an uncomfortable thing, unless it is accompanied by pain or loss of strength. The majority of tumors of the bladder are at first ordinary papillomas—common warts—but for a reason that it is difficult to explain they have a tendency to become malignant growths, assuming a malignant growth to be one that has a tendency to destroy life, and not always paying strict attention to its appearance under the microscope.

I was interested in the report of a tumor disappearing after the use of a 20 per cent. solution of resorcin. I shall tell you what I think of that disappearance. Two years ago

a man about 45 years old consulted me for incontinence of urine which had lasted about six months. He did not have tabes, he did not have an obviously enlarged prostate and he had no definite obstruction in the posterior urethra, but his bladder was filled up to above the navel and had been carrying an enormous amount of residual urine for a long time. Resorting to cystoscopy, I found that the whole superior bladder wall was covered with an enormous papilloma. It hung down into the mouth of the bladder and completely obstructed it. Under such circumstances anyone would think that he had found the reason for the obstruction. The man refused operation. He was put on the regular use of the catheter. About two months and a half ago, to satisfy one of his friends from whom I had removed the prostate, and who strongly believed that this man also had an enlarged prostate, he came again for examination. I performed cystoscopy and found no vestige of tumor on the superior bladder wall or elsewhere in the bladder. I think that the action of the resorcin in one case was exactly like the action of the remedy which I applied for the curing of this particular bladder tumor. I should regard the use of a 20 per cent. resorcin solution as of no value as a remedy for tumors of the bladder and a 50 per cent. solution as extremely dangerous.

In treating these tumors we must not be discouraged by the fact that we do not cure a large number of those that are cancerous. If we follow the plan so clearly set forth by Dr. Young, we shall perform a valuable service—we shall lengthen and make bearable the lives of many persons who would otherwise be condemned to a speedy death.

In 1900 I operated on a woman 68 years of age for multiple tumors of the bladder. I removed them by resection; some of them were simple papillomas; others were evidently cancerous. The operation was successful. Not until 1910 did she have any hematuria again. She was subjected to cystoscopy frequently during the ten years and no tumors were found in the bladder. In 1910 she appeared with two cancerous tumors on the left side of the bladder base. These were resected with fire, for I think that fire is the best agent to use. I prefer the electrocautery. The patient recovered and lived a year without pain and without hematuria, but died in 1913 from cancer of the bladder and of the pelvis. When we can accomplish so much in these cases, we should not entertain the pessimistic ideas which many surgeons and more pathologists have that nothing can be done for tumors of the bladder because they are necessarily fatal.

DR. A. C. STOKES, Omaha, Neb.: I have tried cauterization, high-frequency and resection. I have come to the conclusion that the first thing to try is resection, and after that, if you like, high-frequency or any other electrical application. Given a tumor of the bladder I resect the portion of the bladder in which it is contained with the electrocautery, if I can. If I cannot and the patient will not submit to it, I resort to the other methods mentioned.

I have been interested in the pathology of these tumors, and I find that parts of them represent a carcinoma and other parts represent a metastatic implantation of the mesoblast, so that some tumors of the bladder may, perhaps, be classified with the tumors of the kidney and the other genito-urinary organs, in that they are, in some cases at least, of mixed tumor type.

DR. LOUIS E. SCHMIDT, Chicago: Eight years ago Dr. Kolischer and I read a paper before the American Medical Association in regard to the operative treatment of bladder tumors, and at that time the opinion was exactly the same as that expressed by Dr. Young to-day. There is no question that the so-called benign tumor should not be clipped off, as it frequently is. A portion of the bladder wall should be resected. So far as positively malignant tumors are concerned, I do not think that there can be any argument that there must be complete resection widely distant from the base of the tumor. If there is a peritoneal coating about that point it should certainly be removed.

Eight years ago I reported a practically complete removal of the bladder, except the trigon, for sarcoma of the bladder. It was practically a Harrington operation. I think that it was the first intra-abdominal bladder operation that I had performed. The patient is still living. We need not have any fear as to the extent of resection, but should remove as much of the bladder as is absolutely necessary. I have operated on this man two or three times since for other conditions; I have had him under constant observation, and I venture to say that there is no one here who would examine this patient and not say that he had practically a new bladder formed. He holds his urine eight or ten hours and has no difficulty in the urinary act.

We should give more thought at present to these so-called inoperable tumors. About nine out of ten cancers of the bladder that I see are beyond operative interference. In cases in which curettment and partial cauterization with the thermocautery and treatment with those different remedies is resorted to, urosepsis has set in from which none of the patients have recovered. The patients have seldom left the hospital, and they have certainly not been improved. It is in this particular type of case that we should endeavor to be of some service. The use of the Roentgen ray in combination with the high-frequency current and other agents that might possibly be of some help will do a great deal to prolong life and relieve suffering.

DR. J. R. CAULK, St. Louis: I have seen twenty-six bladder tumors. Six of these were definitely malignant. Two of them were inoperable, so far as getting curative results was concerned. Two were resections and two were multiple tumors throughout the bladder which had evidently metastasized, the patients suffering great vesical disturbance; the bladder was opened partially resected and cauterized with closure. The other nineteen tumors were in eight patients, and these were treated with the high-frequency current. In every one of these tumors there was a rapid disappearance; some required eight, nine and ten cauterizations but the great majority of them, that is, the ones dating back a year, have recurred, but have been easily controlled.

In these eight patients with benign tumors, three of the growths have been associated with prostatic hypertrophy. Two of them were treated endovesically before prostatectomy. The other one had a large middle lobe, and I had to do a prostatectomy first, and then later cauterized the tumor. I should like to know what the consensus of opinion is about such a combination.

Is there a specific effect of this particular current on these bladder tumors? That question has been hotly debated, and there are pros and cons. I had one patient with two small bladder tumors, in which I cauterized one at one sitting. Three days later there was a definite ulceration in the region of the tumor that I had cauterized. The other tumor had rapidly disappeared without leaving any evidences of having been there. Whether or not it was caused by any specific affinity of this current, I do not know.

DR. D. N. EISENDRATH, Chicago: The question of cancers of the mucous membranes and the structures underneath, from the general surgical point of view, has resolved itself into checking extension by the lymphatic channels. One point which Dr. Young emphasized, namely, the removal by cautery of these malignant tumors I heartily endorse. He has recommended the removal by a wide margin and the use of the cautery through the entire thickness of the bladder. I think that the day is coming when we will adopt the same procedure in cancer of the bladder which we are to a great extent adopting in carcinoma of the tongue and the mucous membrane of the mouth; that is not the use of the knife, but of the cautery, in incising the tissues around the cancer, thus sealing up the lymphatics.

I believe that we have not followed cases of reimplantation of the ureter far enough to decide how many of these kidneys retain their function when we transplant the ureter into another portion of the bladder. I believe that a great many ureters lose their ureteral sphincter on account of the transplantation, and, as a result ascending infection is favored and frequently cicatricial closure of the vesical orifice of the transplanted ureter of the kind that results so often in transplantation of the bowel and other structures.

THE TRANSVERSE INCISION AND ABDOMINAL FASCIA

AS A METHOD OF APPROACH IN SUPRAPUBIC OPERATIONS ON THE BLADDER AND THE PROSTATE *

GRANVILLE MacGOWAN, M.D.
LOS ANGELES

In approaching the bladder from above, the usual incision to lay bare this organ penetrates the skin, its subjacent fascia, the intramuscular septum, or more often the sheath and fibers of one of the recti muscles, and the

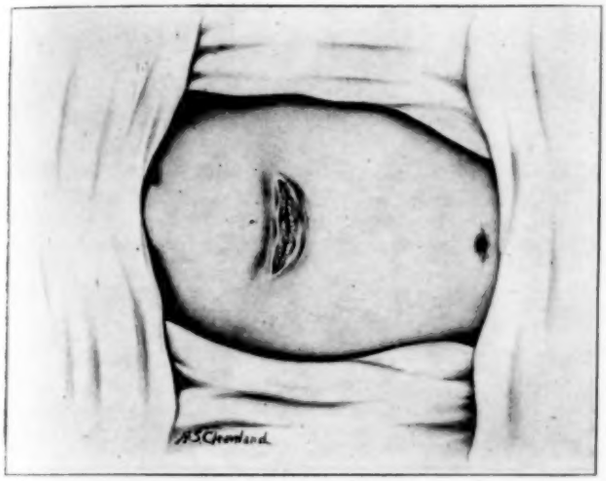

Fig. 1.—Transverse incision through the skin and superficial fascia.

cellular structures overlying the bladder and anatomically directly in contact with it. The idea is primarily to cut so that we shall come directly on the septum between the recti muscles, opening the sheath of neither of them. This is often difficult and if the incision is made close to the pubic bones the pyramidalis muscles interposed between the recti muscles and within their sheaths, lead to confusion.

If the person is stout, or if the abdominal muscles are very well developed, it is not easy to keep the lips of the wound retracted and obtain a good exposure. In manipulations within the bladder through such a wound, one may readily break down the cellular tissues in the space of Retzius. It is rough interference with this space and its infection through the working of septic material, during a prolonged operation, into its loose areolar tissue, and injury to the veins that course within it, which makes, in my opinion, for the greater mortality following suprapubic cystotomy than is observed in operations which open the bladder through the perineum.

If the bladder must be opened intraperitoneally for the removal of an extensive growth, room and light therefor may be obtained by the free extension upward of the longitudinal incision, but it is difficult to close an incision of this kind so perfectly as to do away with the probability of a postoperative hernia should the wound become an infected one. To obtain more room, one is obliged to make a transverse cut through the fascia and a portion of the muscles, or more often sever the recti or their insertions, close to the pubic bones. It is extremely difficult to bring the muscles again into their original relations and if they do become separated it makes a nasty weak spot in the abdominal wall. Several years ago I began to experiment with a transverse incision which extends through the skin, the superficial and deep fascia and a part, or the whole, of the sheath of the rectus muscle on each side. The first subjects I selected were persons with fat abdomens and large strong abdominal muscles. In such cases, using the longitudinal incision, it is extremly difficult to approach a deep-lying prostate or tumor of the bladder. At first I cut through the sheaths of the recti from their inner to their outer sides. Such an extensive incision is rarely necessary. Finding that this method of exposure of the bladder was so much easier and more satisfactory to me than the longitudinal one had been, for the past two years I have employed it exclusively. Every one knows that this incision has been used by many abdominal surgeons in various parts of the world for a long time for the approach to the peritoneal cavity, and I presume that many other people have used this incision for approach to the bladder, but I have never encountered any description of the operation for suprapubic cystotomy which I now propose to describe.

An incision from 3 to 6 cm. long is made transversely through the skin and superficial and deep fascias to the sheaths of the recti muscles, about 6 cm. above the spine of the pubis and slightly convex upward, to provide for better retraction of the skin. The deep fascia is pushed back both above and below the line of contemplated incision in the muscle sheaths for a distance of about 1 cm. so that a clear surface may be provided for the line of sutures when they are subsequently brought together. When divided its edges retract, exposing the body of the muscles. Then the intramuscular septum is to be slightly nicked below with scissors and rolled back with the sheaths, and the pyramidalis muscles appear. These con-

Fig. 2.—Opening of the muscular sheath.

sist of thin but well-marked muscular bodies which arise from the pubis and extend diagonally from each side to a point in the central tendon of the abdomen from 6 to 8 cm. above the symphysis, filling in and strengthening what appears to be naturally a weak portion of the abdominal wall. The space between these two muscles is to be sought for and they are to be separated or pressed apart by the handle of the knife. Sometimes it is necessary to split their fibers, especially at the apex, before they and their corresponding recti muscles can be pulled apart. Just as soon as this is accomplished the recti can be retracted easily. If the bladder has been previously

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

filled with water or air, it appears in the wound covered only by a thin layer of areolar fatty tissue. It is not necessary to push and dig around to find this organ. It should be grasped in the lower angle by an Allison forceps and pulled up and two sutures of silk, linen or celluloid thread passed through the muscular coat, one on each side, with a round-pointed, half-curved needle, to serve as traction sutures so that the bladder may not

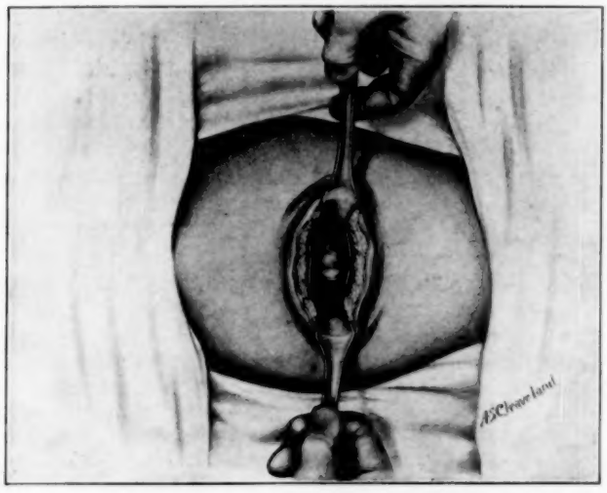

Fig. 3.—Exposure of recti muscles.

sink into the abdomen when the fluid which it contains is let out through the catheter before it is cut open or when it is punctured and the air is let out. The incision into the bladder may be made longitudinally or transversely. I am inclined to believe that the longitudinal incision is the better one. Then comes what, in my opinion, is the point of greatest importance in rendering a suprapubic cystotomy a nearly innocuous procedure, which should

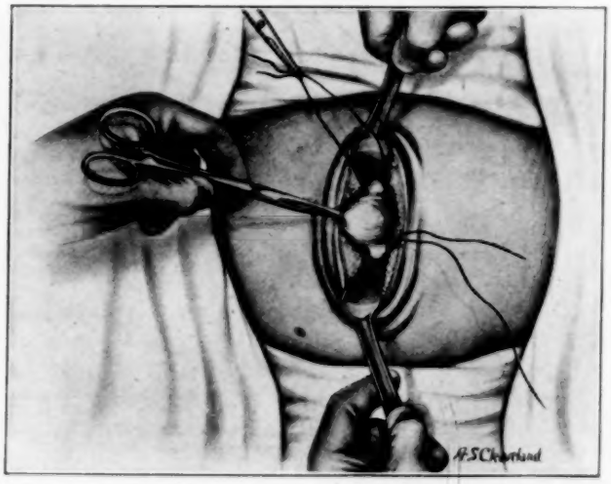

Fig. 4.—Retraction of the recti and pyramidalis muscles and the bladder drawn up by means of the Allison forceps, the traction sutures being introduced.

be accompanied by less than 1 per cent. of fatalities directly chargeable in any way to the operation itself. As soon as the bladder is opened as widely as desired, from two to four sutures should be inserted through all of its coats and the muscle or fascia of the muscle on each side, so that the space in front of the bladder and between it and the pubic bones shall not be disturbed by subsequent manipulations. If two of these stitches are placed in front, one on each side of the median line, and the bladder is held up by two other lateral stitches, it is kept during all of the course of the operation in such a relation to its surroundings that they do not become infected.

When the operation within the bladder is finished, if it is one that is accompanied by considerable hemorrhage which cannot be entirely stilled, or one which, as in the case of removal of the prostate, presents no immediate alarming hemorrhage but in which the loss of blood promises to be continuous and probably too great to permit of the closure of the bladder entirely, it should be closed partially around a drainage-tube sufficiently large so that it cannot become clogged with clotted blood. For this purpose I employ a piece of pure rubber tube 2.25 cm. wide and about 40 cm. long, provided with one or two lateral eyes close to its proximal extremity. This tube is slid along a gorget into the bladder before the removal of the supporting sutures. These sutures are then cut out one at a time and a purse-string suture of No. 2 catgut inserted through all of the muscular coats of the bladder about the tube. The traction sutures are

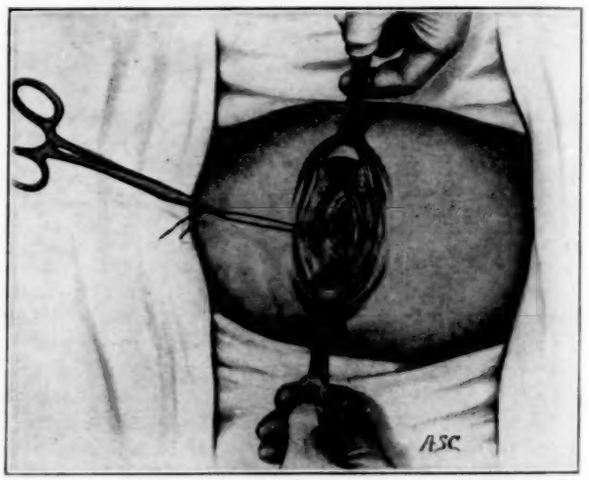

Fig. 5.—Supporting sutures introduced for the purpose of protection of cellular tissues surrounding the wound.

kept in place until the purse-string has been inserted, so that an assistant can keep the bladder within sight. When the purse-string is in place, the last traction stitch is removed, because one has the bladder well under command with the purse-string suture, which is then tied and its competence tested by filling the bladder through a catheter in the urethra attached to an irrigator. If the purse-string has been properly placed it will be found that all of the water that enters the bladder passes out through the drainage-tube. The purse-string suture may be strengthened at each end by an interrupted suture. The upper surface of the bladder, which has been handled during the operation, and the surrounding narrow margin of cellular tissues are then mopped with tincture of iodin and the bladder allowed to fall back.

The large drainage-tube is placed just far enough within the bladder so that the eyes are entirely within the cavity, but the end of the tube does not touch the trigon. By this precaution tenesmus and strain and pain subsequent to the operation will be avoided. The bodies of the recti muscles at the upper angle are brought together by one or two catgut stitches. As I usually make use of spinal anesthesia or, for exploration or sim-

ple drainage or the removal of a stone, the infiltration anesthesia of a 4 per cent. solution of novocain, it is easy to tell how many sutures to place by requesting the patient to cough. The action of coughing throws the peritoneal fold up against the muscles so that one can see exactly where extra strength or protection is needed.

The edges of the sheath of the rectus muscle on each side must be brought together so that they overlap without tension. This stitch is a continuous one and is run with No. 2 iodized catgut, or with a No. 0 chromic catgut, the former preferred. The needle should be a small curved one, the smallest that will hold this size of catgut. The first stitch catches the extreme outer edge of the incision and is tied, with the ends left long. The second stitch is entered about 3 mm. from one edge of the sheath and the needle passed somewhat diagonally with the line of the incision outward to the edge of the deep fascia and then on the opposite side a corresponding stitch is taken; each should take up about 6 mm. of tissue. When this is tightened, it will be found that the edges of the incision come together easily and overlap, bringing the fatty tissues, which contain the blood-vessels, together to cover the tendon. This stitch is repeated until as

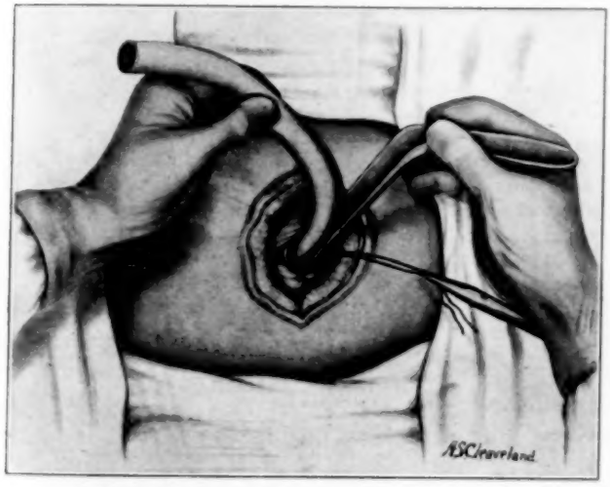

Fig. 6.—Placing of the suprapubic drainage-tube.

much of the severed fascia is brought together as is possible without making too great tension in the center where the drainage-tube emerges. This stitch is much like a baseball stitch; instead of tying at the inner edge where it would make an extra knot, I continue it through the fatty tissue back to the point of beginning, where I tie it again. It does not take much time to place this suture and if it is carefully done there will not be any trouble about it holding securely until the tissues are united. The skin is best left open and will be closed when the bladder is healed. A small cigarette-drain is inserted at the upper and lower angles of the wound. I secure the drainage-tube to the skin with a Florentine suture, which must not pass through the tube, but through a small gauze trailer tied rather tightly about the tube just where it joins the skin, tying it in a bow-knot so that it can be released, in case it is necessary to disturb the tube, without removing the suture from the skin.

For many years I used a system of continuous irrigation in suprapubic cystotomies, in which the salt solution flowed into the bladder through a catheter inserted through the penis and passed out through a drainage-tube of moderate size; or entered through a small drainage-tube placed alongside of and secured to a larger one, both being sewed into the wound in the bladder; or I made use of a tube like that of Mr. Freyer. The latter I found inconveniently large, requiring an unnecessarily large incision, but effective in that it certainly keeps the bladder open and prevents the accumulation of clots; the others I found extremely destructive of my personal

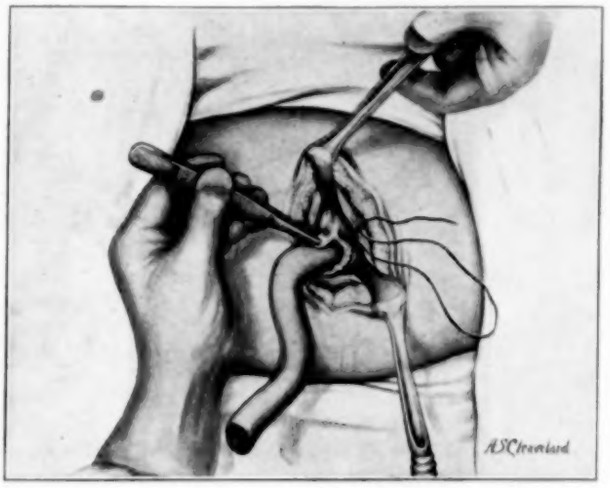

Fig. 7.—Introduction of the purse-string suture about the bladder wound.

comfort, requiring attendance on patients at any hour of the day and night when the tubes would get obstructed and the nurse could not manage to get the flow started again, and the patients were often wet and uncomfortable. I tried also various mechanical appliances, some of which, like that of Bremmermann, are simple but not fool-proof.

I have devised a method of drainage which seems

Fig. 8.—The bodies of the recti muscles brought together with a catgut stitch at the upper angle of the wound.

to me superior to any with which I am acquainted in that it requires no expensive apparatus and is so simple in its operation that attendants of the most ordinary intelligence can easily understand exactly how it works and keep it going. A catheter a little longer than the drainage-tube and about half of its diameter, sufficiently large so that it itself can not readily get clogged, is introduced through the drainage-tube previously described so that

the eye of the catheter reaches just about 1 cm. beyond the proximal end of the drainage-tube. The irrigation through this may be continuous or interrupted. I find it best usually to commence with interrupted irrigation. Nurses are apt to think that when a system of continuous irrigation is used it watches itself, and I find that I get for the first twelve hours much better and more satisfactory service from them if I have them use a hand-syringe or an irrigator at low pressure to keep the tubes clear, injecting slowly a hot, normal salt solution every

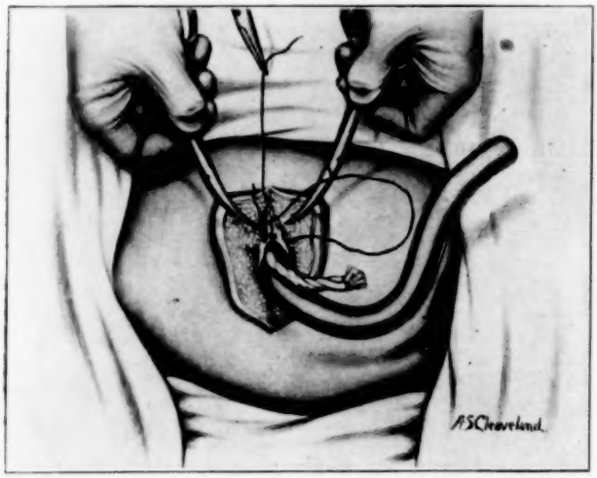

Fig. 9.—Closure of the sheath of the rectus on one side with continuous suture of the baseball type.

ten minutes, continuing the injection until the fluid returns reasonably free of clots. After the end of the first twelve hours I employ continuous irrigation. It will be found that the solution entering through the catheter always comes out freely through the large tube along the side of the catheter. This tube is sufficiently long to reach over the body of the patient into a sterile pus basin which is kept up against one of his hips. He is thus kept perfectly dry during the first forty-eight hours, when the large tube is to be removed and a similar smaller tube inserted into the bladder in its place, there to remain for twenty-four to forty-eight hours more. After its withdrawal, smaller tubes, decreasing in caliber, are inserted or not according to the indications of the case.

The wound which is left after this operation does not close originally any quicker than that left after the longitudinal incision, but it is a funnel-shaped wound from the skin to the bladder, and everything is within sight. The opening in the bladder, being made at its highest point, is readily reached, and there is no tendency for the wound in the skin to close before that in the bladder. There is no weakness in the abdominal wall afterward. The scar that is left when the wound does close is good, firm and solid, and if, for any reason whatever, one is obliged to open the bladder through such a scar, one always knows where the peritoneum is and does not have to worry about opening it accidentally.

I never have been able to understand why suprapubic cystotomy is regarded by the surgical world as a grave operation. I am very certain that the mere opening of the bladder, in the manner which I have described, should not of itself be the cause of death of anyone. Patients may die after such operations from the causes which gave rise to the necessity for the operation, but not from the operation itself, when it is done with due regard to the protection of the areolar spaces about the bladder and the prevention of postoperative hemorrhage from blood-vessels within the muscular coat of the bladder wall, which cannot take place when the bladder is before the operator so that he can see these blood-vessels, pick them up and tie them when he incises them.

602 Lissner Building.

ABSTRACT OF DISCUSSION

DR. W. T. ELAM, St. Joseph, Mo.: Dr. MacGowan's method is different from the one I have used, although I make the transverse incision through the skin and subcutaneous fat. He divides the deep layer of the superficial fascia transversely. Instead of making my incision across the suprapubic region with the convexity upward, I make the convexity downward, following the suprapubic abdominal fold. I do not know that that makes any particular difference, but my flap recedes upward nicely. Then I make my incision, through the fascia longitudinally with the body, in the median line; I know that this is a method by which I can easily enter the bladder, and work more satisfactorily. I really do not see that it could be improved much by making the transverse incision through the fascia. However, I intend to try Dr. MacGowan's method.

I use this incision frequently in intrapelvic work in women. A year ago I had a case of double inguinal hernia in a man who needed a prostatectomy. I did the operation in that way, and I have since followed it out in that way both in the fat and in the lean. I did a herniotomy on the right side and a suprapubic prostatectomy at the same time.

Dr. MacGowan's system of drainage is, of course, as satisfactory as any could be. I have been in the habit of using the continuous irrigation from the beginning. I frequently instruct the nurse to start the irrigation through the suprapubic tube and connect a retention catheter introduced per urethram into the bladder, and then within a short time reverse it. I keep that up during the first twelve hours in order, if possible, to prevent, dislodge and remove clots.

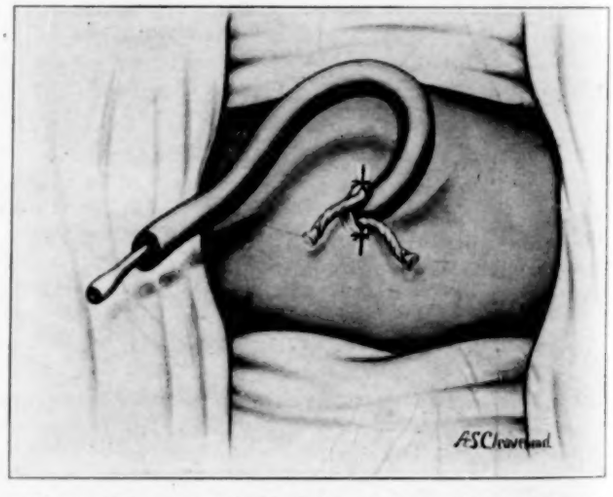

Fig 10.—The wound closed, drainage-tube in place, showing the catheter introduced through the drainage-tube for the purpose of irrigation.

Those who have done suprapubic cystotomies by making the incision vertically through the skin will be much gratified by the change in making a transverse incision through the skin and subcutaneous fat, and perhaps Dr. MacGowan's additional transverse incision through the deep fascia may make the field of operation still easier of access.

DR. M. KROTOSZYNER, San Francisco: I am pleased to hear that Dr. MacGowan has not given up spinal anesthesia, which I also use in selected cases and which I consider a safe and efficacious method, especially for prostatics. In a few cases,

in which on account of the patient's poor condition even spinal anesthesia did not seem to be practicable, I have opened the bladder under local anesthesia with gratifying results. I use a 0.5 per cent. solution of novocain, to each 10 c.c. of which is added one drop of epinephrin. A rhomboid figure is described by infiltrating the bladder region above the pubes, in the center of which the incision is made. This method of anesthesia seems to be particularly indicated for the purpose of rapidly opening the bladder as the initial step in the two-stage prostatectomy.

DR. G. G. SMITH, Boston: In order to get at growths in the very base of the bladder or in the prostate and so that we can see what is going on at the prostatic orifice, it is essential to carry the incision well down to the pubic bone.

I should like to ask Dr. MacGowan whether that lower edge of the rectus fascia does not prevent one from getting down into the pelvis.

DR. A. L. CHUTE, Boston: I should like to ask Dr. MacGowan if he thinks that constant irrigation is essential. I have never had any trouble with clotting, and it has always seemed to me that the continuous irrigation tended to keep up the bleeding. I should like to ask him if he has had any trouble in that way. It seems to me that the bladder distention ought to open up the vessels and cause more bleeding. The other method works satisfactorily. When continuous irrigation is used, moreover, you are not able to estimate the amount of urine. If the patient is in bed it seems to me it is essential to know how much urine he is excreting, and I do not see how that is possible with continuous irrigation.

DR. GRANVILLE MACGOWAN, Los Angeles: I think you refer to the incision that I saw Cabot make in Boston this year. What struck me most about that incision was that it was so unnecessarily large. It is easy to obtain everything you desire without it. I do not know how many bladders I have opened suprapubically, a thousand at least in my lifetime, and I have tried all methods to make it easy and safe. One can pull the bladder up and out on the abdominal wall through the incision which I have recommended. It is not necessary ordinarily to see the mouth of the bladder, but, if it should be desired to see it directly with the eye, the lower flap of this wound can be pulled down with a retractor after the central tendon is slightly snipped along under the sheath of the rectus muscle. I have removed tumors from the bladder extraperitoneally and intraperitoneally through an incision of this kind. You can get more room by going out further on the fascia, even out beyond the rectus muscles, if it is desired. The edges pull wide apart readily. There are a few cases in which I should prefer the incision which Dr. Cabot uses. It is surprising how much can be done through a small incision made transversely, and, if a small incision through the skin and fascia gives all the room necessary for an operation, why make a larger one? If a larger one is needed, it can always be made.

It has been my unfortunate situation during the whole progress of my surgical career to be dependent on myself. The surgeons who are in large hospitals have at all times skilled interns to look after their cases. Getting up in the middle of the night to take clots out of a bladder is probably something that many of you have been called on to do. When a surgeon has to nurse the cases himself, continuously watch them, or have them looked after by persons who are not trustworthy and skilled, he spends a great many anxious nights if he does not have some way to prevent the accumulation of clots in the bladder. The only sure method that I know for preventing such an occurrence is the procedure of Dr. Freyer, who sticks in an extraordinarily large tube, so that if there is tenesmus from the clots the bladder muscle cannot close. This very large tube, or my own, which is just as efficient and much more comfortable, prevents its closure. Continuous irrigation by the drop method is a great boon to the patient, to the nurse and to the surgeon. The nurse knows practically what she is doing, the patient does not have excessive hemorrhage and the surgeon does not lose his rest. It does not seem to me that it is at all necessary to know how much urine the patient is passing. If the eye is trained, a good observer can tell the minute he comes into the room of a man who has been operated on if there is any lack of kidney function by the general look of his face, and an examination of his tongue; the latter always waves the danger flag.

When after operation the bladder is sewed up tight—I will confess that I have been venturesome enough to do this a few times after prostatectomy and do it successfully, though I should not like to recommend such a practice in general to surgeons—an accurate account of the fluid which comes out of the bladder can be kept, but even then you do not know how much is blood and how much is urine, and you have to squirt water continuously through the catheter to keep it open. If a tube of the kind that I have described here is used, you will know how much fluid has gone into the bladder, because the nurse keeps track of it, and you will know how much comes out of the bladder, and you can deduct one from the other and have a fairly accurate idea as to how much urine the patient has passed.

VASOSTOMY—RADIOGRAPHY OF THE SEMINAL DUCT *

WILLIAM T. BELFIELD, M.D.
CHICAGO

Vas and vesicle usually accommodate from 4 to 6 c.c. of a non-irritant liquid, such as 5 per cent. argyrol solution, injected through a scrotal vasostomy. None of the solution escapes through the ejaculatory duct until vas and vesicle are filled, because this exit is closed by a sphincter. This muscle yields to overfilling of the seminal ducts, the solution passing into the prostatic urethra and thence usually backward into the bladder, but occasionally forward into the anterior urethra, escaping at the meatus. An unlimited quantity of solution may thus be used to irrigate vas, vesicle, ejaculatory duct, prostatic urethra and utricle; and this irrigation may be repeated at the discretion of the operator.

Fig. 1.—Pus infection of vesicle; gleet. For this and the following radiograms, vasa deferentia, seminal vesicles and ejaculatory ducts were injected with collargol solution through vasostomy.

For days after such filling of the seminal duct, peristalsis of vas and vesicle occurs, shown by the constant presence of argyrol in the urine, and sometimes demonstrable through the urethroscope as an intermittent discharge from the ejaculatory ducts. Since this occurs without subjective perception, peristalsis must be regarded as a normal function of the seminal, as it is known to be of the urinary, duct; and the prostatic urethra as the natural catch-basin for the seminal duct, as is the bladder for the urinary canal.

Retrograde urination, that is, the escape of urine through the vasostomy incision when a strong desire to

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

urinate was resisted by the patient, has been observed in three of my cases; in two of these, argyrol solution injected into the bladder was forced through the scrotal incision, proving the source and course of the clear fluid previously observed to issue from the cut. Two of these patients had suffered from frequently recurring epididymitis during several years following a gonorrhea; in each the corresponding ejaculatory duct was patulous and easily catheterized. Although this passage of urine from the urethra into the vas seems hitherto to have been unobserved except after operations on the prostate (by Voelcker in two operative cases), yet it seems probable that such retrograde passage of urine into the seminal duct may be the not infrequent cause of recurrent epididymitis and vesiculitis following gonorrhea, as in these cases.

The normal peristalsis of the seminal duct explains certain hitherto obscure phenomena, including the phosphaturia so frequent in the subjects of sexual neurasthenia. These men usually exhibit an infection of the vesicles with hypersecretion and active peristalsis of their contents. Since the vesicular secretion is known to precipitate lime-salts when mixed with urine, it is apparent that the constant discharge of such secretion into the prostatic urethra and thence into the bladder can throw the lime compounds of the urine out of solution in the bladder, causing phosphaturia. That this was the correct explanation in two patients I proved by catheterizing both ureters while the urine in the bladder was cloudy from undissolved lime-salts; from these catheters clear urine escaped. Blood and pus mixed with urine may be derived from the vesicles.

Anastomoses between the dilated extremity of the vas (ampulla) and the associated vesicle are not rare. Since these must furnish direct passage of spermatozoa into the vesicle, this observation seems to prove that the vesicles may be not only secretory organs, but also reservoirs for spermatozoa, contrary to the current assumption.

Experience with vasostomy has shown that sterility may be due to occlusions not alone of the epididymis, but also of the vas and of the ejaculatory duct; also that the absence of spermatozoa from the emitted fluid is sometimes due not to an obstruction of the ducts but to arrest of the spermatogenic function of the testis through an infectious disease, such as mumps or typhoid fever.

That such arrest of spermatogenesis, without impairment of sexual power, may be caused by exposure of the testes to the Roentgen ray, and that it commonly exists in cryptorchids and hybrids (for example, the mule) is generally known; but that it may result also from certain infectious diseases should be understood. For the delusion is still prevalent that sexual power is dependent on spermatozoa; and that the absence of these from the semen of a potent man must be due to occlusion of the seminal ducts. The fact is that sperm production may be abolished by the toxins of general infections, such as typhoid, without diminishing the subject's sexual power; he becomes sterile, but remains potent.

In two of my patients a chronic colon bacillus infection of the seminal duct has caused chronic toxemia, shown by continuous high temperature and progressive loss of weight, exceeding 20 pounds in one case. In both patients irrigation of the seminal ducts through vasostomy was followed by rapid return to normal temperature and gradual recovery of usual weight, as well as disappearance of a chronic gleety discharge sometimes tinged with blood.

The juxtaposition of ureter and infected vesicle, already shown to be capable of causing obstruction of the ureter and consequent damage to the associated kidney, is illustrated in some of my radiograms. The ureter is shown to lie approximately over the central axis of the vesicle; the usual text-book illustrations, made from dissections of the dead subject, apparently do not represent the relations existing in the living body.

Fig. 2.—Colon bacillus infection of vesicles; chronic toxemia.

Fig. 3.—Pus-tube on the right; tortuous vas on the left side.

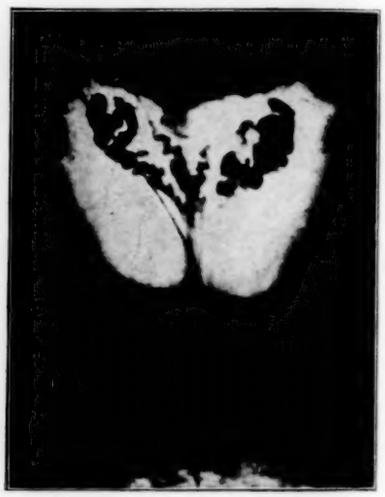

Fig. 4.—Bilateral gonococcus infection; stiletted catheter in right ureter.

Infections invading the seminal duct from either end (urethra or epididymis) may produce (*a*) occlusion or (*b*) a patulous condition of the ejaculatory duct. In the former event a closed abscess results; in the latter, vesicle and epididymis are liable to recurrent invasions by infection and even by urine from the prostatic urethra. The result in either event may be a pus-tube with chronic toxemia. This can usually be successfully treated by injecting the vesicle through vasostomy, sometimes also from the urethra.

In medicating the vesicle through vasostomy, a preliminary injection of some non-irritating liquid, such as 5 per cent. argyrol solution, should be made to test the patency of the entire seminal canal. Should this reach the urethra in a few minutes (shown by blackening of the urine), collargol solution, 1 to 3 per cent.,

may be immediately injected. If the argyrol does not appear in the urine, the more irritating collargol should not be used; for it will be regurgitated into the scrotal tissues around the cut, and there produce a tender induration which is slow to disappear.

The radiograms were made by Dr. Potter and Mr. Ball of the Presbyterian Hospital, and Drs. Case and Van Horn of St. Luke's Hospital, Chicago.

32 North State Street.

TRANSPLANTATION OF THE TESTICLE*

VICTOR D. LESPINASSE, M.D.
CHICAGO

The first experimental work on transplantation of the testicle was done by Berthold[1] in 1849. He used completely castrated roosters and transplanted the testicle into the abdominal cavity. The transplanted testicle grew, maintained its peculiar character as a sexual organ, and the male habits of the chicken continued.

Other investigators have confirmed this result in chickens. In frogs, Herlitzka[2] transplanted testicles into the peritoneal cavity, and found that they degenerated and became absorbed.

Meyns[3] worked with frogs and implanted parts of the testicle into the dorsal lymph-vessel of the frog and found that these transplants grew and developed new mature spermatozoa.

The size of the transplanted organ has a great deal to do with the success or failure of the operation. If the testicle is transplanted *in toto*, it is almost certain to necrose. If it is cut into thin slices from 1 to 2 mm. in thickness and then transplanted into a vascular bed, such as in the substance of a muscle or in the liver, it will grow. In frogs and chickens the spermatogenic cells retain their function and produce spermatozoa. In warm-blooded animals, the spermatogenic function seems to be lost and the spermatogenic cells disappear in less than thirty days. The Sertoli cells and the Leydig cells, however, do not degenerate but seem to maintain their life and function.

EXPERIMENTAL WORK

In the first group three adult dogs were castrated and at the same time their peritoneal cavities were opened. Dog 1 had the two testicles from a week-old puppy dropped free into his peritoneal cavity. Dog 2 was treated in the same manner. The spermatic cord and the tunica vaginalis testis were cut away from the puppy testicles, but the epididymis was left attached to the testicle. In Dog 3 the two puppy testicles were wrapped up in the omentum. These dogs were killed six weeks after the operation. The peritoneal cavities were explored but no trace of the transplanted testicles could be found.

In the second group adult dogs were castrated. The testicles freed of the epididymis, cord and tunica vaginalis testis, were then cut in slices from about 1 to 2 mm. in thickness transverse to the long axis of the organ. The central slice, which was the largest, was then taken and placed among the fibers of the rectus abdominalis muscle. These animals were killed in six weeks' time and the transplanted tissue examined. It had shrunk to from approximately one-quarter to one-third the original mass, and had changed to a yellowish color. In some of the dogs the transplant could not be found at all.

Experimental transplantation of the testicle with blood-vessel anastomosis is practically impossible by either a suture method or magnesium ring method of blood-vessel anastomosis applied to the spermatic artery.

The ideal method is that of patching—removing the section of the abdominal aorta, baring the opening of the spermatic artery, and removing the piece of the vena cava, baring the outlet of the spermatic vein.

My search of the literature revealed no experimental work done by this technic. There is, however, one human case on record by Hammond and Sutton[4] of Philadelphia, who operated by making an end-to-end anastomosis of the spermatic artery and vein. This case was an apparent technical success, but the ultimate result was a marked atrophy of the transplanted testicle. The person into whom the testicle was placed has one sound testicle, and hence it is impossible to determine the functional value of the transplanted organ.

It is a generally current opinion that a graft of an organ has a better chance to grow in an individual that needs the secretion from this organ than in one with a normal organ already.

REPORT OF CASE

A man, aged 38, consulted me in January, 1911, to find out if anything could be done for the loss of both testicles. One testicle which had been retained was removed during a hernia operation; the other had been lost by an accident about two years previous to his consultation with me. He was unable to have intercourse, which was his chief reason for coming to me.

A testicle from a normal man was easily obtained. In fact, I was surprised at the number of testicles that are available for transplantation purposes.

The two patients were anesthetized at the same time, and the recipient prepared as follows: The scrotum was opened high up and a bed prepared in the same way as we prepare the bed for the reception of an undescended testicle. Hemostasis was carried out with great care. Another incision was made over the rectus abdominalis muscle; this incision was carried down through the skin and fascia. The fibers of the rectus muscle were exposed and these fibers separated by opening an artery forceps plunged into the muscle. Hemostasis was carried out and then the testicle to be transplanted was removed. It was immediately stripped of the epididymis, cord and tunica vaginalis, and then sliced transversely to its long axis, these slices being approximately 1 mm. in thickness. The central slice and the one next to it were taken out and placed among the fibers of the rectus muscle. Another slice was placed in the scrotum. The wounds were closed without drainage and healed by first intention throughout.

On the fourth day after the operation the patient had a strong erection accompanied by marked sexual desire. He insisted on leaving the hospital to satisfy this desire. The desire and power of erection have continued for two years. It is now two years and six months since the operation, but I have not seen the patient for six months.

CONCLUSIONS

Transplantation of the testicle is a perfect operation in frogs and chickens; spermatogenesis and sexual characteristics are preserved. In guinea-pigs, rabbits and dogs the results are variable. Some experimenters report that there is no success at all; others assert that the interstitial cells remain and functionate. In the two

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* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Berthold: Transplantation der Hoden, Mueller's Arch. f. exper. Med., 1849, p. 92.
2. Herlitzka: Transplantation des testicules, Arch. ital. de biol., 1899, ix, 140.
3. Meyns: Froschhodentransplantation, Arch. f. d. ges. Physiol. (Pflüger's), 1910, cxxxi, 433.
4. Hammond and Sutton: Case of Transplantation of Testicles, Internat. Clin., 1912, xvii, 150-154.

human cases that have been tried to date, the one with the blood-vessel anastomosis was certainly a failure as far as spermatogenesis is concerned; but the interstitial cells may be and probably are present.

In my own case the result clinically has been absolutely perfect. The man has regained his sexual powers completely, both as to desire and as to ability to perform. Furthermore, these powers have remained present for two years.

7 West Madison Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BELFIELD AND LESPINASSE

DR. E. O. SMITH, Cincinnati: A few years ago when Dr. Belfield told us of his treatment of the seminal vesicles through the vas deferens, most of us were somewhat skeptical as to the injected fluid getting into the seminal vesicles. Having taken advantage of the Roentgen ray, we now know that the fluid does go from the vas into the seminal vesicles. The operation of injecting the seminal vesicles is a simple one and can be done under local anesthesia. I use anesthesia only in the skin; I use no anesthetic in the spermatic cord or vas. Colic or severe pain following the injection of collargol has been mentioned as due to blocked ejaculatory ducts. That, of course, would explain some cases, yet one of my first patients injected for radiographic purposes, had a most severe colic, notwithstanding the fact that he passed the collargol through the urethra, a few minutes after the injection of the seminal vesicles. This colic lasted for several hours, and was so severe that morphin had to be given hypodermatically. In this case the collargol regurgitated through the incision in the vas into the scrotum. There was a thickening and hardening of the parts, due to the inflammatory process resulting from the irritation of the collargol, but there was no infection.

The relation of the ureter to the vesicles is, I think, best studied on the cadaver. My observation has been that the ureter enters the bladder near the upper pole of the seminal vesicle. The ureter passes diagonally through the bladder, and the ureteral orifice in the bladder would show a little farther down on the seminal vesicle in the roentgenogram. In one or two specimens that I dissected the seminal vesicle extended probably three-quarters of an inch above the ureter overlapping it.

We have found some interesting anomalies in the seminal vesicles in our post-mortem dissections. One was completely double on both sides in the same person. By that I mean that, instead of a single tube with the saccules on the side, we found two complete seminal vesicles on each side joined only at the lowest part.

I think one of the results of this roentgenographic work will be therapeutic. I believe that a great many of these old chronic cases will be cured by one injection of strong collargol solution. Perhaps some of the type of cases that we have been draining surgically can be relieved by this simpler method. One of our first patients for roentgenoscopy was a man who had been treated as a neurasthenic for a long time. We found by examining the seminal vesicles through the rectum that there were some abnormalities, tenderness, etc. No bacterial infection was found in the expressed contents of the seminal vesicles; yet the neurasthenic symptoms and pain disappeared after one injection of the collargol. I therefore believe that we shall soon be in a position to recommend a single injection of a strong solution of collargol as a therapeutic measure. In case this fails we can then resort to the more radical treatment of surgical drainage.

DR. V. D. LESPINASSE, Chicago: Last winter I had two interesting cases of vesicular infection. One of them was in a man whose condition was originally diagnosed as grippe, then as rheumatism. Finally he complained of a little urinary disturbance. He was a man about 55 years of age. He had a very slightly enlarged prostate. He claimed that he never had had gonorrhea, but he had a distinct bilateral seminal vesiculitis; the vesicles were enlarged and tender. I wanted to open up the vas, but was refused.

The other patient was a man I treated some eight months ago for a vesiculitis. He complained of slight pain, particularly on ejaculation. He apparently made a recovery. He went to work, and had attacks of colic. A doctor told him he had a stone in his bladder and gave him some morphin, which quieted his attacks. When he came back to me I suspected that the stone was not in the bladder. I performed cystoscopy and found no stone. I put my finger into the rectum, and as soon as I touched the vesicle he said, "There it is." I opened up the vas, and where I exposed it, it was dilated. The lumen was about as large as the lead in a pencil. As soon as incision was made a light, brownish fluid came out. After a few minims of that had passed out the pain was relieved. A few days later I injected the vesicle and the patient had a return of pain. The brownish fluid continued to drain for ten days. The patient was well when I left home yesterday.

DR. WILLIAM T. BELFIELD, Chicago: The spasmodic contraction of the seminal vesicle—spermatic colic, as it is called—has surely in one case been mistaken for renal colic. Roentgenoscopy was performed and no stone was found. Nevertheless the surgeon opened the kidney without finding the stone or relieving the spasm. Some time afterward the patient came to me. He had a history of seminal vesiculitis following gonorrhea prior to his supposed renal colic; opening the vas and injecting the vesicle relieved him. I reported that case some years ago.

Another patient was operated on for appendicitis because of vesicular pain; another was about to be operated on, but declined. So I fancy we have quite a large clinical field here which we are just beginning to explore.

The case of Dr. Lespinasse is certainly interesting. The transplantation of both testicles and ovaries has been worked out on animals, and in the case of ovaries on human beings. Tuffier of Paris has a list of cases in which he has transplanted ovaries with a restoration of the menstrual function. On this operation on the male, so far as I know, there is no literature whatever. Dr. Lespinasse's case, therefore, acquires extreme interest.

DR. V. D. LESPINASSE, Chicago: Tuffier's work was on ovaries transplanted into the abdominal wall. One very important point in the technic is that the ovary should be transplanted with the pedicle or hilum toward the muscle. Apparently if he put the hilum out toward the skin the ovarian graft did not seem to take. That is the statement he makes. My experience with ovaries is nil. Perhaps if we are a little more careful in our technic, we can really get some results that are worth while.

Ostwald's Theory of Genius.—"If we bear in mind the well-known laws of heredity discovered by Mendel and de Vries, we know that every descendant is a mosaic of those qualities which have been transmitted to him partly by the father and partly by the mother. In the face of this fact the problem arises how such an unusual personality can be descended from parents of average ability, since it is just from these laws of heredity that we should conclude that another average equipment would result." The answer which Professor Ostwald would venture as regards this problem is this: The portions of the inheritance constituting a new being probably only on rare occasions fit together or harmonize with each other. The adolescent man then applies the greatest portion of his energy in the task of organizing these accidental inheritances for the purpose of common work and harmonious cooperation, and this task uses up the greater part of the available energy, and withdraws it from productive work. It is only in rare cases that the inheritances are so constituted that they fit each other from the beginning, so that the young man has not to expend any energy on the mutual harmonizing of his elements, but can immediately set about his creative work.—*Current Opinion*, London.

THE OPERATIVE TREATMENT OF HALLUX VALGUS AND BUNION

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Surgeon to the Pittsburgh and St. Margaret Memorial Hospitals

PITTSBURGH, PA.

The etiology and pathology of this distressing affection are well known. Though it is objectively trivial, not dangerous to life, its subjects are frequently more grateful for relief than are those on whom some life-saving operation has been done.

Numerous methods of operation have been devised and practiced, notably those of Barker, Hueter, Riedle, Weir, Fowler and Mayo. In all, except that of Fowler, the approach to the joint is made from the inner side of the foot, which places the scar in a position where it will be subject to pressure from the shoe. Mayo[1] states that this is but a theoretical objection and that practically it causes no trouble.

Fig. 1.—Fowler's incision for hallux valgus; to be made by dissection, not transfixion, close to outer side of first metatarsal bone; reversal of great toe. Case of moderate degree is shown, requiring removal of but a portion of metatarsal head.

The method of Fowler[2] as modified by me possesses certain advantages which may be summarized as follows:

1. The incision is in a location where, even on theoretical grounds, it cannot be objectionable.
2. It affords a much better exposure of the diseased ends of the bones than any other method and permits accurate shaping of the new articular surfaces.
3. The joint is opened on the outer[3] side, dividing the shortened external lateral ligament, an important step in avoiding recurrence.
4. Ankylosis is prevented and a new joint formed by the interposition of a fatty-fibrous flap.

DESCRIPTION OF OPERATION

The incision is made between the affected toe and the second toe, beginning well behind the head of the metatarsal bone on the dorsum of the foot and extending directly through between the metatarsal bones to the plantar surface (Fig. 1). It should not be made by transfixion but by careful dissection, the outer side of the first metatarsal bone being hugged closely. This is important, as will be seen later. The external lateral ligament of the affected joint is freely divided and the great toe forcibly dislocated inward and reversed, the articular surfaces of the metatarsal head and the proximal phalanx presenting (Fig. 1). So much of these surfaces as may be necessary is now removed, preferably with a mounted wire saw (Fig. 2).

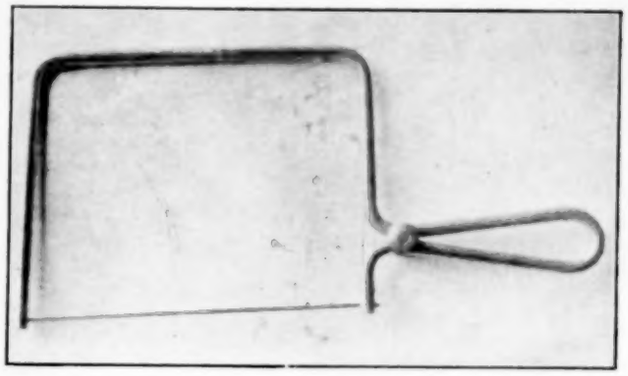

Fig. 2.—Mounted wire saw. The bone ends can be sawed into any shape desired with ease. The saw is cheap and can be procured at any hardware store.

In bad cases the head of the metatarsal and part or all of the base of the phalanx require removal. If so, after the periosteum has been pushed back, the metatarsal is sawed from before backward to leave a convex surface to oppose the base of the phalanx sawed in the same direction with a concave surface (Fig. 3). The plane of these surfaces should be at right angles to the shaft of the bones. Thus we substitute for the ball-and-socket joint a hinge-joint permitting of but little lateral movement.

A fibrous-fatty flap is now dissected up beginning at the web between the toes and having its base at the point

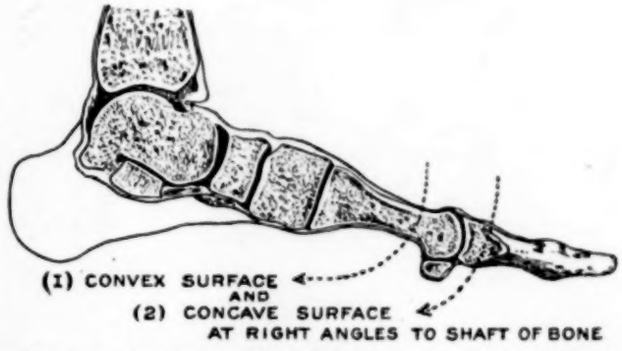

Fig. 3.—Only extreme cases would require removal of amount of bone here depicted. The direction of the lines of bone-section for forming a hinge are indicated.

of section of the metatarsal bone. This is turned outward over the convex end of the metatarsal and fixed in place on the inner side of the bone with a few catgut sutures (Fig. 4). Abundant tissue is available for this flap, since the intermetatarsal space is much increased in hallux valgus (Fig. 5), and the primary incision lies close to the first metatarsal bone.

Instead of this flap, the bursa lying over the head of the metatarsal on the inner side may be used to inter-

1. Mayo: Ann. Surg., August, 1908.
2. Fowler: Treatise on Surgery, ii, 620.
3. Throughout this paper the terms "outer," "inner," "external" and "internal" refer to the midline of the body and not to the midline of the foot.

pose between the sawed surfaces as in Mayo's operation. The fatty-fibrous flap is preferred, since it is normal healthy tissue, while the bursa is in a state of chronic inflammation (bunion). If the bursa shows much evidence of disease it should not be used for this purpose, but dissected out.

Fig. 4.—The entire head of the metatarsal is supposed to have been removed and the fatty-fibrous flap from the intermetatarsal space turned over sawed surface to inner side and fixed with a few catgut sutures. The artist has improperly represented it in that the covered end of the metatarsal projects too far.

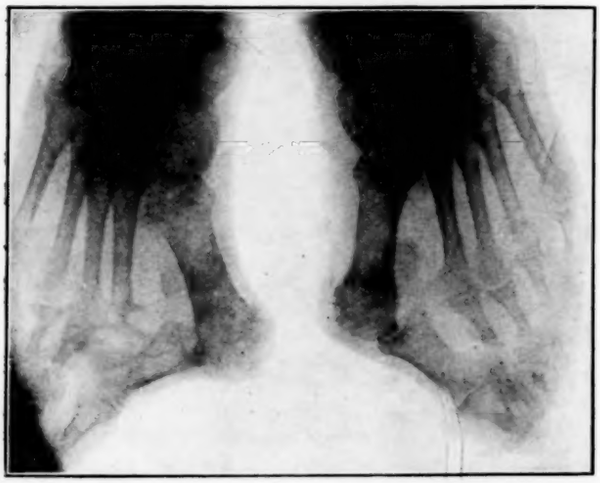

Fig. 5.—Exaggerated intermetatarsal space between first and second bones. Severe case prior to operation. The deformity has been accentuated in right foot by reason of amputation of second toe for hammer toe, done some years before.

The tendon of the long extensor of the great toe is cut and permitted to retract. To attempt to relocate it on the toe (Weir and Mayo) merely invites recurrence of the deformity while it serves no useful function. No one who wears shoes can suffer any inconvenience from the loss of this tendon. The sesamoid bones beneath are not disturbed.

The toe is now returned to its normal position and the capsule of the joint sutured loosely. The incision is closed with three or four silkworm-gut sutures and continuous lock-stitch 00 iodin catgut. Drainage is provided for with a few strands of No. 1 iodin catgut. A wet dressing of 1 : 500 liquor iodi compositus (Lugol's solution) is applied and a shallow cigar-box with top and one end removed is placed over the foot to protect it from the bed-clothes. In lieu of the box, a molded plaster splint (not cast) may be applied along the inner side of the foot to project beyond the toes and to which the great toe is bandaged somewhat inverted.

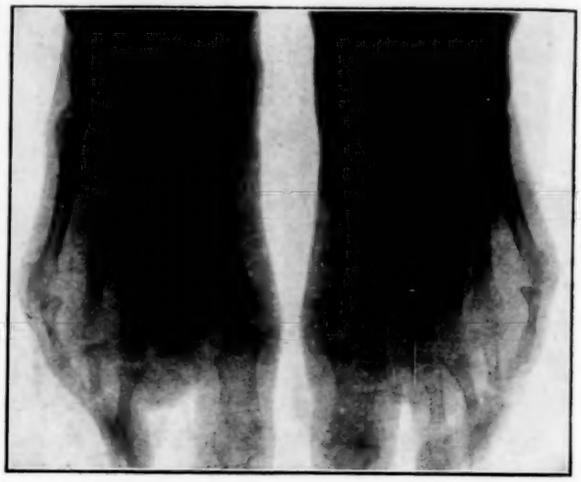

Fig. 6.—Same patient as Figure 5, one month after operation.

Some operators, notably Lovett,[4] seek to obtain firm union and ankylosis after resection of the joint in order to prevent recurrence. This interferes greatly with walking, as a natural gait involves flexion at this joint with each step.

812 North Highland Avenue.

THE LOCAL SPECIFIC THERAPY OF INFECTIONS *

II. TREATMENT OF CERTAIN INFECTIONS

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I propose to lay before you in this lecture the results already obtained by the method of local specific treatment of infection. They are derived partly from experiment and partly from experience with human cases of disease, and they relate chiefly, but not exclusively, to the infections of the membranes of the central nervous system which have formed the starting point of the studies on which the method has come to rest. It may be said, however, that the employment of the method is not limited to the cerebrospinal cavity, although the full extent of its application has still to be worked out.[1]

The reasons are perhaps obvious for utilizing the infections of the meninges as the point of first departure.

4. Lovett: Keen's Surgery, ii, 565.

* This is the second of two lectures which as here presented are based on the Harben lectures of 1912 given before the Royal Institute of Public Health, London, and the Trimble Lectures of the Medico-Chirurgical Faculty of Baltimore of 1913. The first lecture appeared in THE JOURNAL, Aug. 16, 1913, p. 447.

1. Flexner: The Biologic Basis of Specific Therapy, Boston Med. and Surg. Jour., 1911, clxv, 709.

The method was originally conceived and put first into experimental and then into clinical practice during the early period of the epidemic of meningitis which visited this country about ten years ago. The general adoption somewhat earlier of the device of lumbar puncture had exposed the meninges in a particularly favorable way to the inspection of pathologic conditions affecting them. By the same means it was rendered possible to produce experimentally in monkeys local infections of the meninges reproducing the corresponding inflammations occurring in human beings which could now be followed closely in process of evolution and even of devolution. It is now an old story that by injecting living, virulent meningococci subdurally into monkeys a fatal acute meningitis is produced; and it is also well known that while the course of this experimental infection is not influenced by intravenous injections of an antimeningococcus serum, it is capable of being arrested and brought under control by direct intraspinal injections.[2]

It is unnecessary to present statistical and other data in order to support the contention that the antimeningococcus serum influences favorably the course of epidemic meningitis. The accumulated experience of the past six years during which its employment has grown in volume and extent until now it is in regular use in practically all countries, has demonstrated its value and made necessary a revision of certain notions concerning its action.[3]

Formerly no fundamental biologic distinctions were made between meningococci; now differences in power of resistance to solution by immune serum are being recognized. Under the influence of the serum injected into the subarachnoid space the diplococci come, as a rule, to lie more and more within the leukocytes; and as recovery from meningitis progresses, even though no antiserum has been employed, a corresponding phenomenon is noted. Indications exist, however, that certain examples of epidemic meningitis in man which respond imperfectly to the therapeutic action of the serum are caused by meningococci resistant or "fast" to the antiserum employed. These strains tend to remain persistently extracellular and to multiply freely in the presence of the antiserum, even under conditions of its high concentration in the meninges. The cases of human infection with the supposedly resistant strains fail not only to respond to the therapeutic action of the antiserum, but also, it can be inferred, more often to ameliorate spontaneously, and thus tend to a fatal termination.

Fastness seems to be capable also of appearing during the specific treatment, since in some instances the meningococci having been at first readily controlled by the injections develop resistance to the serum. This has been noted in certain cases of relapse going on to a fatal termination. Hence, under special circumstances the meningococci seem to acquire a serum-fastness that thwarts its specific action. The original "fast" strain is of uncommon, and acquired "fastness," at most, of occasional occurrence. It is not known whether merely one strain or many fast strains distinct from one another exist in Nature. Information on this point is highly desirable, as is the utilization of fast strains of the meningococcus in the preparation of the antimeningitis serum. Should a true polyvalent serum of high titer carrying immune bodies for the fast strains be developed it is probable that the mortality percentages from meningitis would come to be decreased still further.

Although at first regarded as doubtful it now appears that fulminant cases of meningitis are not wholly without the sphere of beneficial influence of the serum. This conclusion rests, first, on specific statements of recovery of cases of this kind under the influence of the serum and, next, on the change wrought by it in the mortality from the disease during the first three days of prevalence, which is the period during which the fulminant cases terminate in death.

The age factor affects the outcome of the specific treatment just as it affects spontaneous recovery from meningitis, only its influence is even more marked in the serum-treated cases. The most favorable conditions for the specific treatment are in patients between the ages of 5 and 20 years, and the least favorable ones fall in the period above 30 years. The exact coincidence of the favorable ages for spontaneous recovery and for recovery under the serum treatment indicates that the serum provides artificially the means the body itself employs, when it can fabricate them, to suppress the infection, and that two factors, one provided by the body and the other by the serum, cooperate in the end-result; while the greater number of cases terminating by crisis under specific treatment enforces the same conclusion.

The extension of the practice of lumbar puncture as an aid to the diagnosis of meningitis is serving to reveal the important fact that the influenza bacillus is a not infrequent cause of severe and usually fatal seropurulent cerebrospinal meningitis. The first observation on influenza bacillus meningitis was recorded in 1892, and Wollstein has recently collected from the literature fifty authentic cases, supported by bacteriologic investigation. Among this series of instances, which probably gives no adequate notion of the extent of the disease, the recoveries recorded, if fairly representative, indicate a fatality of more than 90 per cent., or one exceeded only by the tuberculous and pneumococcal infections of the meninges. Among the eight cases that came under Wollstein's attention, there was no survival. This affection, like the acute meningeal inflammations in general, is more prevalent among children than among adults.[4]

Influenzal meningitis is associated in many, if not in all, instances with influenza bacillary infection of the respiratory tract which, at certain seasons, becomes exceedingly frequent in children. The effects of the infection are various and commonly consist of a persistent bronchitis or the more severe bronchopneumonia. The bacilli can be cultivated from the bronchial mucus and, as thus obtained, possess, as a rule, but low virulence for laboratory animals. In these patients the influenza bacilli do not appear in the circulating blood. When the meninges are invaded an acute inflammation is produced, and the bacilli in the cerebrospinal fluid now show marked virulence for laboratory animals and often appear and multiply within the circulating blood.

The cerebrospinal fluid, removed by lumbar puncture, from human patients is always turbid, and deposits, on standing, a yellowish or whitish sediment, the supernatant liquid remaining nevertheless somewhat clouded. As the disease advances, day by day, the fluid becomes

2. Flexner: Experimental Cerebrospinal Meningitis in Monkeys, Jour. Exper. Med., 1907, ix, 142. Flexner and Jobling: Serum Treatment of Epidemic Cerebrospinal Meningitis, Jour. Exper. Med., 1908, x, 141.

3. Flexner: The Results of the Serum Treatment in Thirteen Hundred Cases of Epidemic Meningitis, Jour. of Exper. Med., 1913, xvii, 553.

4. Wollstein: Influenza Bacillus in Inflammations of the Respiratory Tract in Infants, Jour. Exper. Med., 1906, viii, 681; Serum Treatment of Influenzal Meningitis, ibid., 1911, xiv, 73; Influenza Meningitis and Its Experimental Production, Am. Jour. Dis. Child., January, 1911, p. 42.

more heavily charged with pus-cells until toward the end, and as late as the seventh day of illness, the puncture may yield merely a viscid mass of purulent matter. The number of influenza bacilli present in the fluid is usually large; and the bacilli lie chiefly extracellular among the pus-cells, although a variable, but small, number is usually found ingested by the leukocytes. In morphology the bacilli vary somewhat and in this respect the observer may readily be deceived as to the nature of the bacteria present. While some of the fluids contain the typical, minute rods, others show quite irregular and knobbed or even filamentous bacteria that have little resemblance to the influenza bacillus as seen in recent cultivations. These bizarre or involuntary forms, however, are met in old and exhausted cultures; and when they are recultivated on a suitable hemoglobin medium, they yield the typical minute rods.

The cerebrospinal fluid removed, by lumbar puncture, from monkeys inoculated by subdural injection with virulent cultures of the influenza bacillus is at first turbid, then purulent, and contains a large number of the bacilli, also chiefly extracellular. The bacilli regularly invade the general blood from this source, from which they can be cultivated during life and after death. The average duration of life of the inoculated monkeys varies from thirty-six hours to several days, but, on the whole, is less than in human patients with influenzal meningitis, who may succumb in three or four days or survive two or more weeks. At necropsy a purulent exudate covers the surfaces of the brain and spinal cord, which is more delicate in the case of the experimental than of the spontaneous disease. The fluid in the lateral ventricles tends to be turbid; and from both sources numerous bacilli can be cultivated.

Hence it appears that in all essential points the experimental approximates closely to spontaneous influenzal meningitis. This fact once established, the question which immediately presented itself was whether the experimental affection could be controlled by means of a specific serum that was introduced directly into the seat of disease by intraspinal injection. By means of ordinary methods, first a goat and then a horse was immunized to the bacilli. It was ascertained that the normal blood contained neither agglutinin nor opsonin for the influenza bacillus. The first cultures injected subcutaneously were non-virulent strains, which failed to give rise to immunity principles. When virulent strains were substituted, agglutinins and opsonins began to appear. After several months' treatment they reached a considerable level, the opsonin always exceeding in quantity the agglutinin produced. The serum lacked bacteriolytic properties. At this juncture it was tested therapeutically.

The serum injections were made at various periods after the inoculation of monkeys and consisted in the injection of virulent cultures, in a previously ascertained fatal dose, into the membranes by lumbar puncture. The earliest period at which the serum was injected was five hours and the latest twenty-four hours after the inoculation. The bacilli had multiplied extensively and leukocytes and lymph had appeared in the cerebrospinal liquid. The bacilli were predominatingly extracellular. Two, three or four cubic centimeters of liquid were drawn off and replaced by the serum. According to the symptoms presented the injection of the serum was repeated after from twelve to twenty-four hours. Usually three or four injections sufficed to arrest the multiplication of the bacilli and to control the inflammation. The first evidences of favorable action on the part of the serum consist in a beginning increased ingestion of the bacilli by the phagocytes and, as shown by diminishing turbidity of the fluid withdrawn by the puncture, of retardation of the course of the inflammation. The symptoms disappeared more slowly than the evidences of infection. With each succeeding injection of the serum the local conditions in the membranes improved: the fluid withdrawn was clearer, contained fewer bacilli and those present were chiefly inside phagocytes; while the colonies developing in cultures were also diminished. The pus-cells, however, might disappear before the last bacilli since the perfectly limpid cerebrospinal liquid, taken from what appeared to be well animals, still yielded the bacilli in some instances. Ultimately they also disappeared entirely.

Let us now follow the events taking place in the blood-stream. The virulent bacilli pass quickly from the meninges into the blood, where they multiply. It is patent that unless the bacteriemia can be suppressed it would be futile to base hopes of success on the control of the meningeal inflammation alone. I have referred to the fact that infection of the meninges in children with influenza bacilli follows, usually, on a previous infection of the respiratory organs. It appeared in the course of the earlier control experiments that in the monkey the reverse effects may take place. That is, the bacilli brought by the blood to the lungs sometimes set up pneumonic inflammation there. It is necessary, therefore, to consider the consequences of the bacteriemia on the local treatment of the meningeal infection. Fortunately, the difficulties surrounding the passage of the antiserum from the blood into the cerebrospinal liquid are directly contrasted with the ease with which the antiserum escapes from the meninges into blood. This discrepancy is explained by the fact that while the fluid on entry is in the nature of a secretion from the chorioid plexus, the escape is by way of the veins in the membranes themselves. While, therefore, it is impracticable to bring the antiserum into the meninges from the blood, the reverse result is readily accomplished. Thus it happens that in such secondary infections of the circulation with bacteria as we are here considering, not only does the suppression of the primary focus of infection stop the eruption of the bacilli, which is the cause of the blood infection, but also the passage of the antiserum from the membranes into the blood arrests their development there.

The experimental results are obviously the beginning, merely, of the attack on the problem of the specific therapy of influenzal meningitis, and they will come to have merely theoretical, or the far more important practical, interest, according as they are in some degree applicable to the infection in human beings. At the outset it should be recognized that often influenzal meningitis is a secondary process that follows on a previous infection usually situated in the respiratory tract. Only experience can answer the question whether the control of the meningeal infection will suffice to save life in view of the influenzal lesions elsewhere present, and whether or not these also are favorably affected by the serum. The anti-influenzal serum is just now being issued for use in man. It has been applied too seldom in the treatment of influenzal meningitis to warrant any deduction but one, namely, that under its influence the bacilli in the cerebrospinal liquid diminish in number and are taken up more freely by phagocytes.

Pneumococcal meningitis, having also been opened up to experimental investigation, may be considered somewhat in the same manner. Meningitis is caused by the

pneumococcus more frequently than by the influenza bacillus, and its mortality is certainly no less than in the latter disease. The two affections resemble each other in being secondary rather than primary infections. The pneumococcus infection follows on pneumonia, inflammations of serous membranes and infections of the nasopharynx, internal ear and mastoid cells. In other words, the pneumococcus penetrates directly to the cerebral membranes from an adjacent structure or is brought to them indirectly by the blood.

When a virulent culture of the pneumococcus is injected into the meninges of monkeys an acute meningitis results that presents the chief clinical and pathologic characters of the disease as it appears in man. It corresponds with the spontaneous disease further in ending with rare exceptions in death. While the course of the experimental affection appears to be the same, irrespective of whether the pneumococci are injected into the meninges of the brain or spinal cord, therapeutic tests have shown that the infection following on the former is far more difficult to control than that resulting from the latter. It is probable that in man, also, the early injury inflicted on the brain by the pneumococcus entering directly the cerebral meninges diminishes the chance of recovery.

Many attempts have been made unsuccessfully in the past to control pneumococcus meningitis by indirect and even by direct injections of an antipneumococcus serum.[5] It is quite impossible to tell from the rare recoveries whether or not anything of value was accomplished by the treatment. The case with the experimental disease is quite different. Rhesus monkeys can be made to develop regularly a fatal form of meningitis through subdural inoculation in the lumbar region of a suitably virulent culture of the pneumococcus. The inoculation is followed by an incubation period of several hours, after which the animal gradually falls ill. The symptoms intensify and death results in from twenty-four to seventy-two hours after the inoculation.

The subdural injection of antipneumococcus serum may produce no effect whatever or may delay somewhat the fatal result; it does not prevent it. Whether any or no action whatever is exerted by the serum depends not on the stage of the disease so much as on the particular quality of the serum employed. I referred in the previous lecture to the fact that the pneumococcus is one of the parasitic micro-organisms that flourishes in Nature in more than one form. In fact, it is now known to occur in several independent forms which resemble one another in cultural and differ from one another fundamentally in immunity reactions. It is only when the type of infecting pneumococcus and corresponding immune serum are brought together that any effect whatever is produced on the multiplication of the parasites within the meninges and the steady progress of the disease. Ultimately, even under these favorable conditions, the infected monkeys die. Is it possible by any known means to avert the fatal result? This question can now be answered affirmatively and for the reasons that I shall relate.

The factors considered in the past responsible for spontaneous recovery from infectious diseases consist of the blood antibodies and phagocytes. Probably other elements participate in the process and in special definite chemical substances that are always present in a focus in which tissues and cells are disintegrating. That various cells of the body yield, on extraction, substances capable of dissolving red corpuscles and destroying bacteria and differing markedly from the antibodies of the blood has long been known. Leukocytes contain and give up to solvents thermostabile bactericidal chemicals of considerable potency. A long line of special investigations deals with this subject, the full significance of which is not yet appreciated. The thermostabile bactericidal and hemolytic substances yielded by the cells of the organs on extraction and autolysis are in part identical with the leukocytal bactericides and have been identified as soaps of the higher unsaturated fatty acids.

Considerable significance may attach to this observation. It has long been known that soaps appear in inflammatory foci and in degenerating tissues; and the calcium salts deposited in obsolete necrotic lesions are united, in part, with fatty acids. Recent inflammatory foci contain lipase and, of course, disintegrating leukocytes and tissue elements. The latter yield both neutral and higher phosphorized fats, or lecithin-complexes, from which the lipase is capable of liberating fatty acids. This reaction, moreover, is not restricted to inflammatory foci purely and to cells obviously degenerating and disintegrating. That it takes place in a much more subtle way is shown by observations made on the liver. The normal organ yields less than one-half its fat on simple extraction, the remaining part being bound to the protein so firmly as to require digestion or denaturation of the latter to release it. The liver in phosphorus or toluylendiamin poisoning, on the other hand, gives up its fat to simple solvents, and a part of the fat has already been converted, during life, into glycerol (glycerin) and free fatty acids. The liver in acute yellow atrophy likewise contains an excess of free unsaturated acids, and the lung in acute lobar pneumonia yields both the free acids and lipoidal substance.

The quantity of bactericidal bodies yielded by cells in process of disintegration may be considerable, therefore, so that it may well be that the dissolution of tissue-cells and leukocytes that often results from a local bacterial infection may be not entirely to the advantage of the parasite since the chemical substances liberated themselves exert an injurious action on the infecting bacteria.[6]

The study of the manner of reaction of pneumococcus cultures to oleate soaps has illumined the subject. The effects of sodium oleate are representative of the class of bactericidal soaps. In solutions of from 0.5 to 1 per cent. the chemical rapidly kills the pneumococci, which are converted into a formless viscid mass. In solutions of, say, 0.1 per cent. the pneumococci survive, but they have been rendered more subject to dissolution by autolysis than untreated pneumococci. The acceleration of the autolytic process is so great that a few hours suffice for complete disintegration of the micro-organisms. Still weaker concentrations—say, 1 part of the soap in from 10,000 to 20,000 parts of water—produce no obvious alterations: the bacteria retain normal form, staining and power to grow in cultures. And yet the autolytic reaction is heightened; but still more significant is the fact that the pneumococci have become subject in remarkable degree to serum lysis and particularly to immune serum solution. This phenomenon is of considerable theoretical interest since it shows that a bacterium may be altered by chemical action in such a

5. Lamar: Chemo-Immunologic Studies on Localized Infections, Fourth Paper, Experimental Pneumococcic Meningitis and Its Specific Treatment, Jour. Exper. Med., 1912, xvi, 581.

6. Lamar: Chemo-Immunologic Studies on Localized Infections, First Paper: Action on the Pneumococcus and Its Experimental Infections of Combined Sodium Oleate and Antipneumococcus Serum, Jour. Exper. Med., 1911, xiii, 1.

subtle way that while it retains all its obvious biologic properties apparently intact, it may yet be changed profoundly in its chemical reactions.

The soaped diplococci exhibit still another profound change. They have lost in some degree their virulence for mice and rats. The retained virulence is, however, always sufficient to cause septicemia and death of the inoculated animals unless, indeed, immune serum has been injected along with the culture. The course of events in rats injected into the peritoneum is instructive: in the control animals the unsoaped diplococci begin to multiply rapidly, there is almost no emigration of leukocytes and death occurs in eighteen hours. The addition of an immune serum alone to the untreated diplococci does not save life. The soaped diplococci suffer, within four hours of the inoculation, a considerable diminution in number; but multiplication sets in later, leukocytes in numbers remain absent from the exudate, no phagocytosis occurs and death results in thirty hours. The addition of a normal serum does not change this result essentially. When an immune serum is substituted, however, the diplococci are quickly suppressed, and no subsequent multiplication whatever takes place; no more leukocytes migrate than in the other instances, but the animals fail to become ill. Hence the conspicuous fact that oleate soaps act in a peculiar manner on pneumococci, rendering them subject to serum lysis not only *in vitro* but equally *in vivo,* and coincidently enabling an immune serum to remove their pathogenic action. This important final action of the immune serum takes place only when there is correspondence between the type of infecting pneumococcus and antipneumococcus serum employed.

Before proceeding to the consideration whether these observations are capable of being put to therapeutic use, let us consider for a moment the question of the manner in which pneumococci disappear from the pneumonic exudate and ascertain whether any analogies with the preceding phenomena can be detected. We know that the diplococci undergo a form of autolysis in the exudate and that they likewise are diminished in virulence, and we have seen that these are equally the effects which soaps produce. The other factor necessary to reduce still further the pathologic action of the parasite is a specific immune serum which is provided by the antibodies that appear in the blood in the course of the pneumonic attack. The theoretical conditions are therefore obviously fulfilled for the bringing about of the dissolution of the diplococci in the affected lungs. There is now presented, however, a serious obstacle to the working out of this relationship. The hemolytic and bacteriolytic effects of the soaps of the unsaturated fatty acids are inhibited by protein matter such as exists in the serum of the blood or of exudates. This inhibition must first be overcome before the lytic action can take place. Just how it is set aside, if at all, within an exudate is not known; but it is worth while to consider factors that may possibly suffice to remove the impediment, among which are the proximity of the bacteria to the nascent fatty acids and soaps, and to suggest the existence there of other chemical substances that may have the effect of removing the protein inhibition. The inhibition can be prevented in the test-tubes and also in the animal body by adding a third constituent of a protective nature, which in this instance may be boric acid. A minute quantity of this chemical prevents the union of soap and protein matter when the latter is not in too great excess.[7]

This finding has made it possible to employ mixtures of sodium oleate, antipneumococcus serum and boric acid in the treatment of established pneumococcus infections. In this way the intraperitoneal inoculation of highly virulent cultures in rats has been brought under a measure of control. The peritoneal cavity, however, because of the variety and complexity of the contained viscera, and the ready isolation of foci of infection impossible to be reached locally, make success in that site, in very small animals, difficult to achieve. Hence, we have again turned to the meninges, the subarachnoid spaces of which are better adapted to the purposes of experiment, with the results to be mentioned.

It is possible to cause pneumococcus meningitis by injecting a culture of suitable virulence into the membranes of monkeys by lumbar puncture. Since the infection set up should, on the one hand, terminate fatally in the controls and, on the other, insure the survival of the animals for two, three or more days, in order to afford average conditions for the operation of the therapeutic agent, the culture and the dose must be accurately worked out. This having been done, it can now be shown that the injection of an optimum mixture of sodium oleate, boric acid and immune serum, by lumbar puncture, into the cerebrospinal membranes is capable of rescuing many infected monkeys, eight, twelve, eighteen and even twenty-four hours after the inoculation and at a time when the number of the diplococci present in the exudate is large and the animals are critically ill.[8]

The effect of the mixture is striking. Within three or four hours of the first injection the diplococci have undergone an enormous diminution in numbers, and phagocytosis, previously entirely absent, has begun to take place. The injections are repeated at intervals of from twelve to twenty-four hours for several days and until all pneumococci have disappeared from the membranes and the fluid has again become clear and limpid. The success of the treatment depends in considerable part on complete suppression of the pneumococci, as shown by cultures and by direct microscopic examination, since the infection in the monkey shows a strong tendency to relapse; and a relapse that is not promptly treated and controlled is quickly fatal. On this account extra vigilance is called for; and the seemingly wholly restored animals need to be kept under close scrutiny for several days longer, the general condition, appetite and temperature being closely observed. As already stated, the antipneumococcus serum alone has proved powerless to bring about recovery.

Monkeys that are inoculated subdurally with pneumococci quickly develop a bacteriemia; and it is of great practical significance that with the control of the meningitis the blood infection also disappears. The number of diplococci that sometimes appears in the blood is so large as to indicate multiplication there; but so long as a secondary inflammatory focus does not arise, this state is controllable along with that of the meningitis. In rare instances secondary pneumococcus pneumonia or even peritonitis arose; in these the bacteriemia persisted

7. Von Liebermann and von Fenyvessy: Ueber die gegenseitige Aktivierung hämolytisch unwirksamer Stoffe, Ztschr. f. Immunitätsforsch., Orig., 1909, ii, 436. Lamar: Jour. Exper. Med., 1911, xiii, 1.

8. The therapeutic mixture consists of the following constituents per cubic centimeter:

	c.c.
Antipneumococcus serum (corresponding type)	0.2
5 per cent. aqueous solution boric acid	0.75
2 per cent. aqueous solution sodium oleate (Kahlbaum's or Merck's)	0.05

The mixture is freshly prepared for each injection; it should, of course, be sterile. The dose injected into monkeys averaged 2 c.c. For man it has still to be worked out, but may be from 10 to 20 c.c. and possibly even more. The usual precautions employed in making intraspinal injections, such as previous withdrawal of cerebrospinal fluid and careful and controlled administration, should be observed.

and there was a fatal issue. In some instances a fatal issue has followed on the dissociation of the spinal and cerebral membranes by means of an impassable exudate at the foramina at the base of the brain. This is the common condition arising in epidemic meningitis that has hitherto defeated the curative effects of the antimeningitis serum and is now being overcome by means of direct intraventricular serum injections.

It is obvious that under the conditions stated sodium oleate exhibits a greater affinity for pneumococci than for either ordinary protein matter or the protein constituents of the cells of the nervous organs; for under circumstances in which boric acid withholds it from the latter it still attacks the micro-organisms. This is a condition relating to all drugs employable as curative agents; they must show greater action on the parasites than on the cells of the organs, else they may do harm rather than good. The oleates thus far have been observed to exert their peculiar action on pneumococci irrespective of race; but they have needed to be assisted by immune serums of strict correspondence in origin with the race of infecting diplococcus. Morgenroth[9] has recently prepared a drug, ethylhydrocuprein, related to quinin, which possesses remarkable powers of overcoming pneumococcus infection in mice. Under its influence, however, strains refractory to the drug arise; and probably rare races fast to the chemical occur in Nature.[10] Because of its high toxicity for human beings, however, the drug is inapplicable to the treatment of pneumococcus infections in man.

A small number of tests of the oleate, boric acid and immune serum mixture have been made on human cases of pneumococcus meningitis and the observations on monkeys so far confirmed as to prove the necessity of employing an immune serum agreeing in race with the infecting micro-organism. When this correspondence is accomplished, the pneumococci within the exudate are diminished rapidly by solution and phagocytosis; when it fails, no action on the pneumococci has been detected.†

The conditions are somewhat different with another group of affections of the nervous system which I shall now discuss. The fact has long been regarded as notable that notwithstanding the origin of tabes and paresis from syphilitic infection those diseases respond so little favorably to antisyphilitic measures of treatment. Partly for this reason and partly because of the characters of the pathologic changes, they have been separated off from the typical varieties of syphilis and placed in a special category of metasyphilitic or parasyphilitic affections, so called. Now that the *Spirochaeta pallida* has been shown by Noguchi[11] to occur in numbers in the brains of paretics and has even been found in the spinal cord in tabetics, this classification calls for complete revision.

In the meantime how is the disparity in therapeutic response of these affections to be explained? First, it may be mentioned that there is growing evidence that salvarsan, injected into the blood, may exert a beneficial influence in tabes, but not in paresis. The evidence is derived partly from clinical improvement and partly from the reductions in the cellular and protein contents of the cerebrospinal fluid, and the diminution of the Wassermann reaction. These changes are in accord with the inconstant and fleeting presence of arsenic in the fluid following the intravenous, but not the intramuscular injection of the drug.[12] Hence it would appear probable that better results still might be accomplished provided the drug could be brought with certainty and in suitable concentration into this fluid. Such a method of application, worked out by Swift and Ellis,[13] offers considerable promise of high therapeutic value.

The pathogenesis of tabes is still unsolved. What seems established is that the lesions of the spinal cord and the clinical symptoms are dominated by pathologic states of the meninges. It is known that in most cases of the disease the cerebrospinal liquid contains the products of irritative or inflammatory conditions existing within the membranes; and microscopic study has revealed areas of chronic meningitis about the radicular portions of the spinal and corresponding portions of cranial nerves. To reach the pathologic processes in the membranes, not in tabes only but in paresis as well, is made peculiarly difficult because not only do we have to reckon with the ordinary conditions of impenetrability of the meninges, but there often coexists also an obliterative arteritis of syphilitic origin.

It is not safe to introduce salvarsan directly into the subarachnoid space, and while neosalvarsan, because of its ready solubility, is less injurious, yet the direct injection of that drug is attended with certain risks.[14] Swift and Ellis have therefore taken advantage of the circumstance that the blood of salvarsan-treated patients is itself curative, and they have employed the corresponding serum, suitably diluted, for intraspinous injection. The results are both promising and striking. The local irritative condition in the meninges becomes quickly diminished, the Wassermann reaction reduced or abolished and the clinical state of the patient improved. These effects follow even when the salvarsanized blood of other persons is employed for intraspinal injection. They are due, therefore, to the local and not to the general treatment.

This method has not yet been applied to the treatment of paresis, and nothing less than a careful and thorough trial can determine its applicability. Certain theoretical facts, however, stand well in the foreground. It is known, for example, that the cerebrospinal liquid provides a means of direct and immediate contact with the structural tissues of the brain.[15] Whatever chemical is introduced into this liquid will inevitably find its way to the supporting elements, the nerve-cells and fibers of the cortex in which the main lesions of paresis are situated. It is in the cortex likewise that the *Spirochaeta pallida* has now been found, from which it follows that this organism can best be brought under the influence of curative agents through the same channel of communication.

9. Morgenroth and Levy: Chemotherapie der Pneumokokkeninfektion, Berl. klin. Wchnschr., 1911, xlviii, 1560. Morgenroth: Zur Chemotherapie bakterieller Infektionen, Berl. klin. Wchnschr., 1912, xlix, 663.

10. Morgenroth and Kaufmann: Arzneifestigkeit bei Bakterien (Pneumokokken), Ztschr. f. Immunitätsforsch., Orig., 1912, xv, 610. Boehncke: Beobachtungen bei der Chemo-Serotherapie der Pneumokokkeninfektion, München. med. Wchnschr., 1913, lx, 398.

† It is obvious that to be practical it becomes necessary to possess a method of rapid identification of the type of infecting pneumococcus. A method of this kind is provided by the agglutination reaction as given by Dochez and Gillespie (A Biologic Classification of Pneumococci by Means of Immunity Reactions, THE JOURNAL A. M. A., Sept. 6, 1913, p. 727). Moreover, it will also be necessary to have available either separate immune serums corresponding to the main biologic types of pneumococcus or an efficient polyvalent serum of high titer.

11. Noguchi and Moore: A Demonstration of Treponema Pallidum in the Brain in Cases of General Paralysis, Jour. Exper. Med., 1913, xvii, 232.

12. Sicard and Bloch: Perméabilité méningée à l'arsénobenzol, Compt. rend. Soc. de biol., 1910, lxix, 624.

13. Swift and Ellis: The Direct Treatment of Syphilitic Diseases of the Central Nervous System: A Preliminary Communication, New York Med. Jour., 1912, xcvi, 53. Wechselmann: Ueber intralumbale Injektion von Neosalvarsan, Deutsch. med. Wchnschr., 1912, xxxviii, 1446.

14. Personal Communication from Dr. Swift. Marinesco: Behandlung syphilitischer Erkrankungen des Nervensystems mittels intra-arachnoidealer Injektion von Neosalvarsan, Ztschr. f. diätet. u. physik. Therap., 1913, xvii, 194. Ellis and Swift: The Effect of Intraspinous Injections of Salvarsan and Neosalvarsan in Monkeys, Jour. Exper. Med., 1913, xviii, 428.

15. Mott: Oliver-Sharpey Lectures, The Cerebrospinal Fluid, Lancet, London, 1910, ii, 1, 79.

Prediction as to whether or not a direct specific treatment will accomplish the eradication of the spirochetes in paresis is hazardous for the reason that it remains still to be ascertained whether the spirochetes which have persisted in the brain are normal or resistant strains. Their persistence for so long a period and resistance to the ordinary healing drugs may, conceivably, be due not alone or wholly to their inaccessibility, but also, more or less, to the acquisition of a state of fastness which, if present, may prove difficult to overcome.

The anatomic conditions existing in paresis are comparable to those occurring in sleeping-sickness[16] and poliomyelitis.[17] In all three diseases numbers of lymphoid cells accumulate within the perivascular lymphatic spaces and degenerations occur in the nerve-cells. Just as the spirochetes occupy the cortex in paresis and the trypanosomes in sleeping-sickness, so does the virus of poliomyelitis reside in the tissues of the spinal cord and brain. We have already learned that *Trypanosoma gambiense* can be suppressed by drugs in the blood and lymph-vessels without being destroyed in the central nervous organs,[18] and the virus of poliomyelitis prevented from developing through intraspinous injections of an immune serum that is without effect when introduced into the blood.[19] From this it follows that a local mode of specific treatment offers certain advantages either in theory or in fact not held out in the same degree, at least, by the general method. So far as I am aware local specific treatment has not yet been tested in either paresis or sleeping-sickness. To the former it doubtless will soon be applied; in the latter it should, I think, also be tried.

When the device of lumbar injection is employed to bring the active therapeutic agent into immediate relation with the parasites in the brain, success will be achieved only if the introduced fluid ascends to the level of the cerebral meninges. By injecting colored solutions into animals and human cadavers it has been ascertained that this ascent easily takes place. It has likewise been found that colored fluids and fine, suspended particles readily find their way from the lateral ventricles by way of the fourth ventricle and foramen of Magendie into the spinal meninges.[20] This fact has been put to practical use in abating the acute inflammation of the cerebral ventricles that attends epidemic meningitis by injecting the antimeningitis serum directly into the lateral ventricles. Recovery has been reported in several cases of this kind in infants; and communication has been reestablished between the cerebral ventricles and spinal subarachnoid spaces through which hydrocephalus has been averted. In a similar but simpler way, and with benefit, the serum has been injected into the acutely inflamed joints, caused by the meningococcus, that arise during the infection of the meninges.[21]

A considerable number of isolated instances have been noted in which specific local therapy has been employed successfully. I shall present briefly a few illustrations in this group. Pneumococcus keratitis in man would appear to have been benefited through the installation into the eye of antipneumococcus serum.[22] That success has not been more regular and constant may not improbably be due to failure to take into account the necessary relation of type of pneumococcus and immune serum. A specific form of keratitis can be set up in rabbits by inoculating intravenously the spirochetal causes of syphilis or yaws. Both corneas are frequently affected. When neosalvarsan is instilled into one eye, the lesions resolve quickly in the corresponding and slowly in the opposite cornea.[23] Both finally disappear because a part of the salvarsan is absorbed into the blood. Subcutaneous incisions infected with virulent streptococci have been controlled in the rabbit more surely by applying the corresponding antiserum locally to the wound than by injecting it into a vein. When, in this animal, the streptococcus is introduced into the uterus post partum, a fatal outcome has been prevented by injecting the appropriate serum directly into the organ.[24]

Before closing this presentation I desire to call attention to one more example of local therapy. Hitherto we have dealt with immune bodies and chemicals; now I wish to consider, for a moment, the leukocyte. Tuberculosis of the pleura in the dog can be caused by injecting an emulsion of the tubercle bacillus into this serous cavity. Flat and rounded nodules of tuberculous tissue form on the serous membrane and in the mediastinum, and the adjacent lymph-nodes become tuberculous and enlarged. Left alone the disease is fatal. When, however, living leukocytes, obtained also from the dog, are injected into the affected pleura, the tuberculous tissue may be made to disappear or to be replaced by a fibrous growth. In other words, the condition can be made to heal.[25] Similarly an experimental tuberculous meningitis in the dog has been either diminished in severity or healed by successive subdural injections of living canine leukocytes;[26] and the experimental disease produced in the monkey has been favorably influenced by subdural injections of rabbit leukocytes.[27]

From this it appears that a class of infections not yet subject to specific treatment either with the dissolved immunity principles or specific drugs may yet be made amenable in some degree to the curative action of the leukocytes which are the chief corpuscular defensive weapon possessed by the body. It is surely not without significance that in the effort first to avert and next to conquer infection of the serous cavities, the unassisted body does not or cannot always employ even the mobile cells to the best advantage. Clearly, here as elsewhere, it becomes the duty of medicine, the healing art, to learn both how and when to come to the aid of Nature in her strivings.

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TREATMENT OF INGUINAL HERNIA IN CHILDREN *

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The elaborate classifications of inguinal hernia made by the older writers are no longer recognized. Direct inguinal hernias are now considered as abdominal hernias, and the division of the indirect into infantile, congenital and acquired has been given up because of the increasing evidence that all depend on the presence of a peritoneal sac which is present from birth.

Camper (1762) and Wrisberg (1779) concluded from dissections that inguinal hernias are due to persistence of a patent processus vaginalis (Hessert[1]). The anatomic studies of Zuckerkandl[2] indicate the same thing. Bittner,[3] has never seen any but congenital hernias. Universal acceptance of this view is still in the future, yet careful dissections and study of tissue removed at operation are sufficient to convince one of its correctness.

The common occurrence and especially the form of the sac have led Murray[4] and Hessert to this conclusion. According to the latter, the sac tends to obliterate at three points: the internal ring, the external ring and just above the testicle. In hernias there is usually a constriction at the external ring, indicating the tendency to close at this point. Even in the scrotal type, which extends nearly to the testicle, there is often a constriction in the region of the external ring. From the closed end of the sac a fibrous cord representing the obliterated sac can be traced toward the testicle. In hernias that have existed for a long time and have become large the constriction may be pushed downward from its usual position at the external ring. Dissection of the fibrous cord in such cases shows that there has been a displacement of the point of closure by a distention and sliding downward of the entire sac.

If gross dissection leaves one in doubt as to the existence of the fibrous remains of the peritoneal sac the point may be cleared up by microscopic examination of the tissue removed at operation, provided care is taken to preserve its spatial relations. This procedure furnishes the strongest argument in favor of a patent sac in all cases. Castenholz[5] adds the further convincing evidence that the sac is intimately united to the tunica vaginalis testis and to the cord. This union is so intimate as to preclude the possibility of its being formed after the origin of the hernia.

If the connective tissue at the point of union of sac and cord be examined microscopically, it is found to be made up of an interlacement of fibrils running parallel to the walls of the sac and continuing over the cord, but separated entirely from the other surrounding tissue. I have noted repeatedly that in less than five days after the appearance of hernias of sudden onset the union of sac to cord has been made up of fully developed fibrous tissue free from cellular infiltration. Obviously the union could not have taken place after the hernia developed. I saw the same condition in a person who had suffered from hernia in childhood, but had been free from it for eighteen years. Operation was performed only four days after the appearance of the hernia, but a sac was present, attached to a cord and clearly preformed. I have noted the same condition in hernias said to have occurred after traumatism. The comparison of the sacs of inguinal hernias to the sacs of abdominal hernias which were known to be acquired is convincing. These acquired sacs do not adhere so readily as those of inguinal hernia, and when adhesions do occur the connecting bands are not parallel with the sac wall as in inguinal hernia.

There is no exact information as to what proportion of infants retain a patulous processus vaginalis. In the new-born up to the tenth or twentieth day nearly all are open, while at the second year about half are closed on both sides. What proportion of these closes subsequently is difficult to say. Palpation of the internal ring in the course of laparotomies is not satisfactory, since the palpating finger is too large to enter a small opening. Yet even by this crude method a patulous canal can be demonstrated in perhaps 10 per cent. of cases. This percentage is great enough to account for the 6 per cent. of hernias which are supposed to afflict adult males.

It is certain that many infants who have never had hernias have patulous canals (Murray[6]). The explanation of this is not precisely clear, although several factors are plainly concerned. An abnormally long mesentery is necessary; a normal infantile mesentery could not permit the descent of the intestine in the canal. Some relaxation of the mesentery is necessary. Increased intra-abdominal tension such as results from constipation, straining at urination because of a tight prepuce, and constant coughing because of some pulmonary disease have been assigned as causes. Not infrequently a hernia is first observed in an illness during which the child cries a great deal.

The age at which hernias appear varies greatly. Strangulations in the earliest weeks of life have been reported, but usually they appear between the sixth month and the fourth year. They are rare between the sixth year and puberty. The infrequency of hernia during adolescence is explained by the protection which the canal receives from the developing muscles. The greater incidence of hernia after adolescence is explained by Castenholz on the ground that after puberty the person enters the struggle for existence and his more strenuous life brings about the hernia. That labor is more strenuous than the play of boyhood is not in accord with the experience of most persons. There is more probably some change in the inguinal canal due to the enlarged cord which facilitates the descent of abdominal contents.

DIAGNOSIS

The diagnosis of hernia in children offers no difficulty. The factors which cause confusion in adults are not present in children. Enlarged glands from rectal infection rarely cause a moment's hesitation. Venereal infection in children, so far as I know, does not cause confusion. The only question that arises concerns the contents of the sac. An undescended testicle often appears in the inguinal canal and may be unsuspected if the scrotum is not examined. Ovaries which may appear in the canal are usually diagnosed only at operation. Sometimes, however, their outline may be made out by palpation.

The subsequent course of a hernia is of great importance. In many instances the hernia having once appeared ceases to come down after the child becomes

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Hessert: Tr. Western Surg. Assn., 1910, xix, 173.
2. Zuckerkandl: Arch. f. klin. Chir., 1877, xx, 215.
3. Bittner: Arch. f. klin. Chir., 1894, xlix, 803.
4. Murray: Lancet, London, 1906, i, 363.
5. Castenholz: Deutsch. Ztschr. f. Chir., 1909, xcix, 257.
6. Murray: Lancet, London, 1906, i, 363.

more active. Whether or not a sac that has once contained a loop of intestine or omentum may spontaneously close cannot be definitely stated. Why peritoneal surfaces become spontaneously obliterated during fetal life and soon after birth is unknown. It is not possible to prove that obliteration can be caused by any artificial means. It is maintained by many, however, that some do close spontaneously. The proportion cannot be even approximately stated, for it is quite impossible to keep these patients under observation. From the evidence at hand it is more likely that even when the hernial contents cease to descend the canal remains patent and is always ready to be filled whenever there is a weakening of the muscle or an unusual increase in intra-abdominal pressure. Stiles has demonstrated that in the so-called cures the sac remains patent and only awaits favorable conditions for the reappearance of the hernia. Kovacs[7] believes that it is but rarely if at all that a hernia becomes spontaneously cured.

If a hernia is allowed to go untreated, strangulation with its attendant dangers is always possible. Usually even strangulated hernias can be reduced after a time and death from strangulation is very rare.

PROGNOSIS UNDER TREATMENT

Treatment by means of the truss does not materially alter the course. The purpose of a truss is to retain the hernial contents within the abdomen and permit the surrounding tissues to regain their elasticity. There is nothing in the physiology or adaptive pathology of the peritoneum to warrant us in the hope that keeping the canal empty by means of a truss will cause the sac to become obliterated. That the pressure of the truss may cause sufficient irritation of the opposed surfaces of the sac to cause them to become adherent is of course beyond the possible. At the same time it is necessary to give respectful attention to the palliation of hernia by means of the truss. Two recent books on surgery in childhood favor this treatment within rather wide limitations.

It has been estimated that approximately 25 per cent. of patients treated with the truss are temporarily cured by it. That is to say, after being worn for several years the truss may be left off without a return of the hernia for a period of years. Subsequent history is difficult to obtain, for it is quite impossible to maintain a record throughout the patient's lifetime, and those who advocate truss treatment make no attempt to answer the question as to the future of the so-called cured cases. One meets, however, patients with hernias in later life who give a history of hernia in childhood, which had been apparently cured by a truss. One is therefore inclined to look on the curative value of the truss with skepticism.

The truss has been used for infants only a comparatively short time. It was formerly thought inadvisable because of the disposition to favor troublesome eczemas and even fatal gangrene. Ravoth,[8] as late as 1868, found it necessary to combat this view. As a matter of fact, however, if one entertains seriously the notion that a sac can be obliterated by the pressure of a truss, troublesome excoriations and even graver lesions are very likely to appear. The younger the child the more difficult it is to keep a truss applied.

Most practitioners content themselves by the use of the well-known skein truss. These more often hide rather than retain the hernia. In fat babies spring trusses are kept on with great difficulty and elastic trusses with perineal straps are apt to cause troublesome excoriations. In thin, emaciated babies better results may be obtained. After from three to six years, depending on the activity and build of the child, a truss can be made to retain the hernia with a certain degree of efficiency. The abuse of the truss comes in allowing the child to bear the discomforts of a steel band carrying a pad which rests somewhere in the region of McBurney's point. This gives a false sense of security and unnecessarily punishes the child, especially when a strong spring is used with the idea of obliterating the sac by pressure. The whole development of the child, mental and physical, may be retarded by a troublesome hernia or an ill-fitting truss.

Operative treatment has gradually come more into use in recent years. This is due to the more general appreciation of the anatomic relations of hernia and to a perfected technic in its radical cure.

Palliation is still largely practiced chiefly by two classes of persons; those who are opposed to operation by principle and those who employ palliation from necessity, either because the parents do not consent or because facilities are not available. Those who oppose radical cure from principle may be divided into two classes, those who still believe that hernia may be cured by the truss and those who have met disaster in radical treatment. Among the latter may be mentioned Grunert,[9] who had three deaths in thirteen patients. He advises against operation during the first three years.

Palliation will still retain a large number of advocates because of necessity, especially in regions in which operative facilities are not available.

A considerable number of operators advise operation in all or nearly all cases. Perhaps Stiles[10] has spoken with the clearest vision and the greatest authority. He operated on 360 patients. Of these, one died of infection, one from chloroform, one from gangrene from too vigorous manipulation made elsewhere and two from causes not given—five in all. There were four recurrences. Kovacs[7] had 232 cases with one death from imperfect technic. In 144 cases traced there was one recurrence. Castenholz[5] advises operation in all cases, because it is the only means of cure and because by curing the trouble in childhood when time is worth but little, the patient is spared incapacitation in later years when the struggle for existence is on. Pfaehler[11] advises operation in all cases. He had one recurrence and no deaths in forty-six cases. He treats them as ambulants, the patient being brought to the hospital only for operation and returned home immediately afterward.

More conservative are Coley and Bull,[12] who, after an experience of 1,500 cases, advise operation after truss treatment of one or two years. Earlier operation is done if there are frequent strangulations, if the hernia is irreducible or complicated with hydrocele. In femoral hernias operation is always done. Buford[13] likewise does not operate before the fourth year, except in emergencies. Maass[14] is likewise disposed to be conservative because of the dangers of the operation. He operates only when the hernia increases in size, when there is troublesome eczema or when the parents are unable to care properly for the child. The reason for this conser-

7. Kovacs: Arch. f. klin. Chir., 1910, xci, 177.
8. Ravoth: Berl. klin. Wchnschr., 1868, v, 470.
9. Grunert: Deutsch. Ztschr. f. Chir., 1903, lxviii, 518.
10. Stiles: Brit. Med. Jour., 1904, ii, 812.
11. Pfaehler: Deutsch. Ztschr. f. Chir., 1912, cxvi, 543.
12. Coley and Bull: Med. Rec., 1905, lxvii, 401. Coley, William B.: The Management of Hernia in Infancy, with Results of Operative Treatment, THE JOURNAL A. M. A., Jan. 14, 1905, p. 112.
13. Buford: Illinois Med. Jour., 1910, xviii, 17.
14. Maass: Deutsch. med. Wchnschr., 1901, xxvii, 148.

vatism is the danger of chloroform and the danger of injuring the vas and the vessels of the cord with subsequent necrosis of the testicle. Coley agrees with Maass that the operation is more difficult than in adults.

The point of view of those who operate is, therefore, largely influenced by results achieved. Those who advocate operation must answer both for deaths and for failures, and these factors are both still large enough to dampen enthusiasm. Hernia in children rarely causes death and it devolves on the advocates of operation to show a mortality less than that of the untreated cases. Statistics are not sufficient to determine the point. Stiles[10] estimates that 7 per cent. of all children visiting the clinic (Polyclinic at Edinburgh) have hernias. His mortality was nearly 1.5 per cent. Castenholz[5] estimates the mortality at 0.3 per cent. Those who can show a mortality so low as this are justified in advocating operation, without reserve.

That operation *per se* is without danger is evident, and it is only the surgical accidents that make us pause. Thrombosis after operation has not been observed. Death from chloroform, so often complained of by the Germans, can be avoided by giving ether. Lung complications and intestinal disorders may appear merely coincident with, or because of, the operation; it is impossible often to say which. Injury to the vas and cord is purely a technical error and should not occur, at least not more than once. The surgeon's obligations resolve themselves into a question of asepsis. The delicate skin does not admit of rigorous cleansing and the difficulty of sterilizing a urine-soaked skin is considerable. The greatest difficulty, however, is in keeping the wound clean after operation. Collodion dressing is often inefficient to protect the region. It is this difficulty in keeping the parts clean that has caused many operators to prefer to wait until the child has reached an age when it can cooperate in the matter of cleanliness. After the child has attained the age of 3 or 4 years, spontaneous cure or disappearance for any considerable time is unlikely After this time the child is more likely to be conscious of his handicap, and the desirability of a permanent cure is proportionate to the degree of discomfort and the sensibility of the child. The operation is entirely safe and the cure nearly certain.

The type of operation likewise is subject to differences of opinion. If the patent canal is the only factor, those who advise a simple ligation of the sac are right. Castenholz closes the canal only when it is wide. Stiles believes that the Bassini technic is not needed, because of the shortness of the canal. Coley's experience is in favor of the regular Bassini.

Ambulant treatment is readily applicable and places the operation within reach of many who could not otherwise avail themselves of it. Castenholz sees his patients only after a week or ten days when it is desired to remove the stitches. This shows a confidence in the integrity of the dressings which is not warranted by the experience of most operators; but if the dressings can be observed from time to time Castenholz' method is a very efficient one. My own experience has been that the ambulant treatment is more satisfactory in children after four years than in infants. In the latter, no matter how careful the dressing, trained supervision is required.

SUMMARY

1. All inguinal hernias in infants are due to persistence of the processus vaginalis.

2. Inguinal hernias are not cured by the truss and rarely recover spontaneously.

3. Surgery is permissible in all cases if the facilities are of the best and the operator is skilful. Operation is urgent if the hernia protrudes persistently or if the child is annoyed greatly by retentive appliances which lessen his activities or produce excoriations. Operation is demanded if the hernia is irreducible or strangulated.

4. Because of the difficulty of maintaining an aseptic field after operation it is wise conservatism to wait until the child has reached such an age as will enable him to lend his cooperation, that is, until about the fourth year.

5. Palliation is demanded when organic disease is present or adequate facilities for operation are not at hand.

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ABSTRACT OF DISCUSSION

DR. COLEMAN G. BUFORD, Chicago: The treatment of hernia of infancy is nearly always considered and discussed with that of children in general and consequently there is great confusion. Hernia in infants is one thing, while that in older children is another. I shall try to limit my remarks to the former.

I admit that a large number of cases are congenital; but I have been surprised at the large percentage of supposedly congenital cases showing anatomic evidences of being acquired hernia.

The question of whether or not to operate on uncomplicated inguinal hernia in infants was definitely settled in America by the writings of Bull and Coley, based on almost unparalleled experience and statistics. Their conclusion was that children under 4 years of age should not be operated on for uncomplicated inguinal hernia until truss treatment had been used intelligently for four years. We have endeavored to follow this rule in my service at the Children's Memorial Hospital; but in older children we are inclined to shorten the period of truss treatment.

Babies should not be operated on as a routine because of their susceptibility to infectious diseases when brought among other sick children; diphtheria, scarlet fever, measles and erysipelas appear too often when least expected. Again, male babies are especially liable to wound infection when herniotomized, because of the wound's close proximity to the genitals and anus. Babies are susceptible to the damages of pyogenic infection; even stitch-hole abscesses may easily be the indirect cause of the death of an infant.

I usually refuse to operate on children until (1) they are of such an age and state of intelligence as to aid in keeping their dressings and bedding clean; (2) a complication not easily corrected arises, such as strangulation or existence of an incarceration; (3) failure to retain the hernia by a correctly fitting truss occurs; (4) parental neglect persists, and (5) parents insist on the operation.

We do the Bassini operation on all infants, using one and never more than two sutures to close the posterior wall, catgut closure for the external oblique and horsehair for the skin. Our skin incisions rarely exceed 1¼ inches.

How shall we dress these? Not with a fluff and spica; but with a thin pad of gauze, the length of the wound, over which we place a gutta-percha covering which is sealed to the skin by collodion. After drying, in male babies, we use an apron or watershed of the same material, sealed to the pubes and dropped over the penis, so that the urine is diverted from the wound. Covers must not rest on the dressing. Infants are put in the regular hospital bed, which is surrounded and covered by one or more layers of sheeting, dropped to the floor, thus cutting off the under draft of air. The bed may be heated with hot-water bags hung as radiators. The child wears stockings and a shirt which does not extend below the navel, thus avoiding wetting and contact with the dressing.

The patients not operated on are treated by the use of trusses. Our results are satisfactory and there are few returns. We use the cross-body truss for all single and Hood's truss for double hernias. The material should be hard rubber, the strap excepted. When straps are wet they should be changed. The truss should be washed and dried once or twice daily and oftener if soiled; it will then give off no odors. The skin should be kept hard by hand friction and dusting powder. The truss must be worn day and night for curative purposes. It must fit properly; fit it yourself. It must not make pressure or cause friction sores; it must retain the hernia under all conditions.

THE HOSPITAL MANAGEMENT OF CONTAGIOUS DISEASES *

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It has long been believed, and still is, that the so-called "contagious diseases," comprising such diseases as scarlet fever, diphtheria, whooping-cough, measles, small-pox, chicken-pox, mumps and rubella, are to a large extent contracted by aerial transmission. Much evidence against this view has accumulated during the last few years and one purpose of this paper is to discuss this evidence.

It is only the practical experience of the hospitals of England and France and the Providence City Hospital that will be presented to show the importance of contact infection and the relatively small factor, if any, of aerial transmission. The paper is not based on laboratory findings.

The French were the first to doubt the theory of airborne disease and the importance of controlling contact infection. To Grancher of Paris belongs the credit of being one of the first to put these ideas into practice. He isolated contagious diseases in the wards of a general hospital. Wire screens were placed about the beds to indicate that certain precautions were to be taken in handling these patients. These precautions were based on the method of strict asepsis. From 1890 to 1900, among the 6,451 patients admitted to Grancher's wards, diphtheria was introduced forty-three times and only once did the disease develop in the ward; scarlet fever was introduced nineteen times and seven cases developed. Less success was obtained with measles, although infections were reduced two-thirds. The evidence was, however, conclusive enough to convince Dr. Grancher that even measles was not spread by air.

Out of this simple but important beginning have developed various methods of construction for segregating the various diseases. Aseptic nursing is employed, whatever the type of separation. Some disregard air separation; others aim to interrupt, partially or wholly, air exchange between compartments occupied by patients. All plan to establish physical separation and to prevent contact. Out of Grancher's method developed the barrier system which is largely used in England. This is the method of isolating patients in a common ward. The beds are generally placed on centers 12 feet apart. In the beginning, the beds were surrounded by sheets kept wet with bichlorid of mercury. At present the wet sheets have been dispensed with and the bed is marked in some way. In one hospital, two uprights are set on the floor, one on each side of the foot of the bed, and a cord of colored tape is stretched between. This serves merely to indicate to nurses that precautions are to be taken.

Another method is the so-called cubicle system. The cubicles are small rooms with partitions more or less complete. In many instances the partitions are about 7 feet high. They are of silicon-plaster, glass, or a combination of the two. The rooms are arranged either on one side or on both sides of a common corridor, or sometimes in England, old wards have been cut up into separate compartments by partitions which do not reach the ceiling, all compartments being ventilated from the common air-space above. The cellular block system consists of rooms back to back with glass partitions; access to the rooms is from verandas.

Permit me to report some of the results in English hospitals where medical asepsis has been tried since 1907. In the Plaistow Hospital, Dr. Biernacki has been using the barrier system extensively, as well as the cellular block system. Dr. Biernacki writes that he would isolate the following diseases with the barrier system:

1. Diphtheria.
2. Whooping-cough.
3. Mumps.
4. Rubella.
5. Typhoid fever.
6. Septic infections.
7. Ringworm, except when not additional to scarlet fever.

He does not attempt to isolate measles or chicken-pox, and hesitates to do so with scarlet fever. In his cellular block system all of the before-mentioned diseases are treated as well as typhus. In the block there has been no cross-infection for three years. He quotes no statistics relative to his barrier work, as he has not reached a final decision as yet.

Dr. F. Foord Caiger, medical superintendent of the South-Western Hospital, London, reports on eighteen months from Jan. 1, 1907, to June 30, 1908, on the cubicle system. The partitions are 7 feet high, the lower half being granite silicon-plaster and the upper half glass in a metal frame. Seven hundred and four patients were placed in these cubicles, of whom 289 were scarlet fever convalescents who were placed in them two days and nights before their discharge. The remaining 415 were isolated in them for the following reasons:

1. The original diagnosis was uncertain.
2. The disease, though recognized, was one that called for separate isolation.
3. The patient had been exposed to another disease prior to admission and therefore was possibly incubating a second disease.
4. The patient was suffering from more than one infectious disease.
5. The disease was obviously of a non-infectious nature.

In addition to the 289 convalescent scarlet fever cases referred to above, the following diseases were placed in cubicles:

Scarlet fever, 163 cases, in the eruptive stage of the disease.
Rubella, 82 cases.
Measles, 22 cases.
Diphtheria, 31 cases.
Whooping-cough, 17 cases.

Of these 704 patients, twenty developed a second disease in the cubicles. Three of this number, however, were incubating the disease on admission and a fourth was infected by a ward maid who was suffering from diphtheria. Of the sixteen diseases arising in the cubicles,

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six were scarlet fever, six were chicken-pox, two were rubella, and two were measles. In two instances, one chicken-pox and one measles, there had been no recogized case of the same disease previously in the ward for a period of six weeks and two months respectively. Thus only fourteen persons apparently contracted another disease from patients in the cubicles. It will be seen that no case of whooping-cough or diphtheria developed. Dr. Caiger concludes that of all the before-mentioned diseases, chicken-pox is the only one which he has ceased to put into cubicles because of the six cases arising in the first six months of the period reported on. In his 1911 report he speaks as follows:

> The incidence of secondary infectious disease among the 269 patients treated in cubicle wards was 1.8 per cent., whereas in general wards it was 7.6 per cent. In addition to these 269 patients, chicken-pox and measles being the only excluded, 177 scarlet fever convalescents were placed in one of the cubicle wards for the last two days and nights of their stay in the hospital. In all, 2,547 patients have passed through the cubicles during the five years they have been in use. As an extension of isolation provision they have proved of the utmost service.

Dr. Thompson of the North-Eastern Hospital, London, reports on an experience of two years with the cubicle and box-room system. To the cubicles, 1,290 patients were admitted. The following cross infections have developed:

	Cases		Cases
Scarlet fever	5	Whooping-cough	1
Rubella	3	Chicken-pox	3
Measles	2	Diphtheria	2

His conclusions are rather conservative. During the last twelve months, he placed in the cubicles doubtful cases of scarlet fever and diphtheria and is averse to placing other infectious diseases in them.

To the box-rooms, 660 patients were admitted, suffering from the various infectious diseases except chicken-pox. The following cross-infections developed:

	Cases
Scarlet fever	6
Rubella	3
Measles	2
Whooping-cough	1
Chicken-pox	3

In his 1910 report, Dr. Goodall, medical superintendent of the Eastern Hospital, London, describes the conversion of a long ward, 106 by 28 feet, into twenty cubicles with glazed partitions. Ten rooms open from both sides on a common corridor. These cubicles were opened for patients Sept. 6, 1910. Up to March 25, 1911, 142 patients passed through this ward. Of these, 110 suffered from an infectious disease, while thirty-two did not. The following diseases were included:

	Cases		Cases
Scarlet fever	16	and measles and chicken-pox	1
and diphtheria	2	and measles and rubella	1
and measles	5	Measles	25
and chicken-pox	9	and chicken-pox	1
and rubella	2	and rubella	1
and whooping-cough	1	Chicken-pox	3
and diphtheria and measles	1	Rubella	13
and chicken-pox and scabies	1	Mumps	1
Diphtheria	5	Erysipelas	1
and measles	5	Influenza	1
and chicken-pox	3	Enteric fever	1
and rubella	1	Lobar pneumonia	4
and whooping-cough	2	Scabies	1
and mumps	2	Diseases non-infectious	32
		Total	142

Patients were not selected as to the stage of the disease or as to position in the ward. One child contracted chicken-pox during the six months' period.

Dr. C. Rundle of the City Hospital, Liverpool, reports that during 1910 and 1911, 668 cases were treated by the barrier system. These cases included all contagious diseases, not excepting measles and chicken-pox. During these two years, only two patients developed a secondary disease, both contracting scarlet fever. Other hospitals in England which are employing aseptic nursing are situated at Manchester and Walthamstow.

The earliest and parent hospital, the Pasteur in Paris, is perhaps one of the most successful. Small-pox is admitted to this hospital, which is done in no other hospital so far as I am aware. I know of only one small-pox cross-infection. Two other Paris hospitals, the Herold and the Hôpital des Enfants Malades, employ aseptic methods, but I do not know their results.

I shall now offer for consideration an experience in the Providence City Hospital of three years, from March 1, 1910, to March 1, 1913, with aseptic nursing of infectious diseases. The special construction of this hospital and introduction of aseptic nursing in this country is the work of Dr. Charles V. Chapin, superintendent of health of the city of Providence.

Patients are accommodated in three two-story buildings' situated parallel, one each for diphtheria and scarlet fever, and one an isolation building, so-called, for all other infectious and mixed cases. Each floor of the diphtheria and scarlet fever buildings is divided into a ward of twelve beds and seven or eight rooms arranged on either side of a central corridor. The side rooms vary in size, containing from one to three beds. The ground floor has also an admitting room, connecting with a doctors' gown and wash room, and a patients' bath. The large number of small rooms furnishes the opportunity for isolating mixed or doubtful cases and for detaining new cases a certain period of time before they are allowed with convalescents. Each serving kitchen is provided with a utensil sterilizer for sterilizing dishes, etc.

Each of the rooms, except the large ward, is provided with a lavatory with forearm levers and without plugs, hooks for gowns, a bar on which to hang individual towels and a small shelf for the patient's thermometer, etc. The usual nursing utensils are kept on a bedside table. All the paint has an enamel finish so that it can be easily washed.

On the first floor of the isolation building are twelve single rooms arranged on either side of a central corridor. Ten of them are arranged directly opposite so that the doors open opposite to each other. Beside each door and opening into the same room, is a full-sized window which permits of better observation of patients by the nurses and keeps the patients better contented by permitting them to see their neighbors across the hall. The partitions rise to the ceiling and are of studding, lathing and plaster. Each room is furnished the same as those just described. This floor also has its serving kitchen, toilet, bath and operating-room. In the serving kitchen is a large utensil sterilizer for sterilizing dishes, medicine glasses, etc., which come from the patients.

The construction of the second floor of the isolation building is similar except that the rooms contain from one to three beds, making it possible to accommodate in the same room several patients isolated for the same purpose. The doors to all the rooms in the building

are always left open unless there is some unusual reason for closing them.

The dormitory for nurses is in the administration building; that for female help is in the service building and for male help over the power house and laundry.

The administration of the hospital has been worked out along the line of avoiding contact infection. It has been our aim to avoid cross-infection and infection of employees by strict asepsis. Every new nurse and employee who has to go into the wards is thoroughly impressed with the idea that if he gets sick it is most likely his own fault and probably due to putting his fingers or something else contaminated in the ward into his mouth; employees understand that if any cross-infection develops they are liable to investigation as to the care they exercise in their work. Every employee has a culture taken on beginning work and before going into the wards. Everyone must be vaccinated before or soon after entering on his work. No prophylactic antitoxin is administered either to employees or to patients.

I shall not attempt to present all the details of our technic, but shall outline the more important; first, those relating to the general administration, and second, the more direct care of the patient.

The resident physicians have their quarters in the administration building and all eat in the same dining-room. While working in the wards, white duck suits are worn, and in each ward a gown is put on if it is necessary to make examinations and thus come in contact with the bedding and patients. On leaving the ward, the gown is removed in the gown- and wash-room and the hands are carefully washed with soap, water and brush in the special basin to which I have already referred. Great care is exercised when not wearing a gown to avoid allowing any part of the clothing to touch the bed, bedding or anything else. Physicians wear the usual hospital uniform and in addition a short-sleeved jacket to avoid sleeve infection.

The nurses all sleep in the same home and eat in the same dining-room. When off duty, they are allowed to leave the hospital as freely as from any general hospital. When the nurse goes on duty, she goes to the dressing-room for that ward where she has two metal lockers, one for clean clothes and one for infected clothing. She puts on her ward clothes and goes to the ward. She changes her dress, cap, apron and bib only. When going off duty, she removes her infected clothing first, washes hands and face, and then puts on her uninfected uniform. The sleeves of the uniforms are either short or rolled up.

The maids and other help put on gowns when entering the wards. These gowns have short sleeves so that the sleeves will not be contaminated. Otherwise employees observe the same care as do the nurses. The ward help eat in the same dining-room and sleep in the same quarters with all the other help, and they, too, are free to come and go when off duty. It is insisted that every case of illness among nurses and help be reported at once in order that no mild infection may be overlooked.

The same kitchen furnishes food to patients and employees. Food supplies are sent to ward kitchens in paper bags and paper trays, and these are destroyed. Such dishes as must pass between kitchens are boiled before leaving the ward and washed again in the main kitchen.

All hospital linen is washed in one laundry, the washing being done in ordinary washers.

The greatest source of infection is certainly the patient himself. If we are to minimize diseases arising in the hospital, we must have very careful regulations and insist on their obedience. Our method of procedure has been based on the contact infection idea and we have disregarded air transmission unless one chooses to insist that the coughing of a patient directly into one's face is air-borne infection.

I will trace briefly the method of care from the time the ambulance goes to the house until the patient is ready to walk out of the hospital. The various infectious diseases, including tuberculosis, are brought to the hospital in the same ambulance or in a coupé. There is nothing peculiar about the construction of these vehicles, except that the interior can be freely washed with soap and water without damage. The attendant and the driver wear clean, washable coats on every ambulance trip. Careful inquiry is made as to the presence of other recent previous infection of the patient or of any one in the house. The patient is wrapped in blankets and brought to the hospital, where he is placed in the appropriate admitting-room. The driver and the attendant return to the stable, remove their coats and wash their hands. The infected blankets and coats are put in a hamper and later sent to the laundry. The interior of the coupé or ambulance which has come in contact with the patient is washed with soap and water.

The patient remains in the admitting-room until the admitting officer has made a physical examination. A culture nose and throat and vaginal smear are taken before admitting to the ward. Even though it may be an uncomplicated case belonging in that ward, every new patient is held in detention from five to seven days, and often longer. "Detention" means that the patient is placed in one of the rooms off the ward used for the purpose where aseptic precautions are observed. Should there be any doubt at all about the diagnosis, or exposure to or suffering from mixed infections, the patient is sent to the isolation building, or else is barriered by placing a red card on the bed.

Briefly, our technic in the care of detention and barriered case is as follows: The patients may occupy single rooms off the ward or be in detention separately or collectively in larger rooms. They are kept in bed and are not allowed toys or anything else which can be thrown from bed to bed. The hands of doctors and nurses are washed after treating the patient. Each patient is supplied with a thermometer, basin, pus-basin, bed-basin, bed-pan, etc., which are kept on a table beside the bed. There is a gown to be used when coming in direct contact with the patient. All dishes are boiled after using. Our object is to control in-going and out-going infection to or from new cases.

The construction of the isolation wards has been referred to. The furniture is small in amount, and, like all the ward furniture, easily cleaned. The isolation wards have proved the most valuable section of the hospital. In them we have not hesitated to treat any of the so-called contagious diseases, except small-pox, in any stage, as well as cases for observation only. We are obliged to treat cases of measles, chicken-pox, whooping-cough, rubella, mumps, etc., and it has been very convenient and, we believe, safe to use these single rooms, equipped as they are. It saves opening a large ward and furnishing a separate supply of nurses and maids for each.

We confine the infection to the rooms immediately occupied by patients. We believe that the corridors, serving kitchen, linen-room, bath and toilet are as safe

and free from infection as those of any general hospital. The same nurses care for the patients on a single floor. The nurse washes her hands with bar soap in running water, using a brush, and dries them on an individual towel every time she touches the patient or anything in the room. After handling measles and chicken-pox, in addition to the washing, a one-minute immersion in an antiseptic solution is required. If the nurse comes in close contact with the patient she puts on a gown. Each patient is supplied with everything as described above. All dishes and nursing utensils coming from these patients are put directly into a sterilizer, if steam can be used, or 1:20 phenol (carbolic acid) solution is used for rubber and glass goods. Bed-pans and urinals are emptied into a hopper and put into a tub of 1:20 phenol solution, in which they are kept an hour or more before removal to the warming rack.

Small children who would play on the floor are kept in bed throughout their hospital residence. Larger children or adults are allowed up, but confined to their rooms, except when they are allowed outdoors, when they are also kept apart. The doors of the rooms stand open all the time, and this practice, together with the extra corridor window, allows patients to see each other and to talk back and forth, and they seem very contented.

When a patient is discharged, the linen in his room is sent to the laundry, the mattress and pillows to the steam sterilizer, and nursing utensils are sterilized. The bed, wash-basin, table, chair, floor and walls within easy reach are simply washed with soap and water. Preferably the room is aired for twenty-four hours, but if we need it we have not hesitated to put a new patient into it immediately. Rooms are never fumigated.

Every discharged patient receives a thorough soap and water bath including a shampoo. The clothing has been sterilized by steam, 10 pounds for thirty minutes, so far as possible. Those articles which steam would injure are treated with formaldehyd vapor in the same chamber, to which 1 or 2 pounds of steam has been added.

It will be noticed that we do not use any disinfectant solution for the hands, except after measles and chicken-pox. It has seemed to us that to wash the hands with soap and water and brush every time they became infected, if we could make it convenient, would be sufficient. There is no antiseptic solution which is efficient under immersion of less than one minute. An antiseptic solution is not necessary after washing, except perhaps in the case of measles and chicken-pox.

Time will not permit me to present the results of aseptic nursing after three years' experience in such detail as I should like to. I believe that the Providence City Hospital is the only hospital in this country which keeps an accurate record of all diseases contracted in the hospital by patients and help, and publishes it in annual reports. I sincerely wish that it were a general practice so that we might have facts on which to base comparisons of the results.

I shall first mention briefly the number of diseases contracted in the hospital, with incidence of infection, among help, scarlet fever patients and diphtheria patients; then take up in more detail the results of treatment in our isolation wards, which is the real test of aseptic nursing.

Among the seventeen physicians who have worked in the wards, the only disease contracted was diphtheria, three cases, 18 per cent. Among forty-seven graduate nurses, scarlet fever developed once, 2 per cent; diphtheria twice, 4 + per cent; rubella once, 2 per cent. Among 183 pupil nurses who work in the wards two months, scarlet fever occurred eleven times, 6 per cent.; diphtheria ten times, 5.4 per cent.; rubella once, 0.5 per cent. Among eleven nurse maids, no disease occurred. Among eighteen ward kitchen maids, one developed scarlet fever, 5.5 per cent., and one diphtheria, 5.5 per cent. One laundry maid developed scarlet fever and a night telephone operator diphtheria.

Diseases contracted among the 861 patients who have been admitted to the diphtheria ward are as follows:

Scarlet fever	2	Rubella	3
Diphtheria	1	Whooping-cough	3
Chicken-pox	18	Total	27

This constitutes an incidence of secondary infection of 3.1 per cent.

Diseases contracted among the 649 patients who have been admitted to the scarlet fever ward are as follows:

Diphtheria	3	Chicken-pox	13
Measles	4		
Rubella	1	Total	21

This constitutes an incidence of secondary infection of 3.2 per cent.

The diseases contracted among the patients in the isolation building have been confined to measles, chicken-pox and scarlet fever. Between March 1, 1910, and March 1, 1913, the period which this paper covers, there have been treated in this ward 842 patients. Of this number, 151 were there less than a week, and 691 more than a week. These 842 patients suffered from the following diseases:

Chicken-pox	76	Tonsillitis	22
Diphtheria	137	Tuberculosis pulmonary	16
Diphtheria carrier	138	Vaginitis gonorrheal	8
Erysipelas	3	Variola	2
Influenza	1	Vincent's angina	4
Measles	242	Whooping-cough	128
Mumps	11	Tinea tonsurans	1
Noma	6		
Ophthalmia gonorrheal	2		1,056
Rubella	37	Non-infectious diseases	88
Scarlet fever	231		
Syphilis	1	Total	1,154

The excess of diseases over the number of patients is accounted for by mixed cases.

The following diseases have been contracted: chicken-pox, 8 cases; measles, 25 cases; scarlet fever, 10 cases; a total of forty-three cases and an incidence of 5 per cent. Remember that the foregoing diseases were placed in the isolation rooms in any and all stages.

So far as I know no other hospital, except the Pasteur, has ever undertaken to care for such a variety of diseases by aseptic nursing. It is fair to conclude that the following diseases can safely be treated by the cubicle system: diphtheria, scarlet fever, whooping-cough, rubella, mumps, gonorrheal infections. There may be some question with relation to chicken-pox and measles. I believe that when our technic is better perfected, these also can be recommended as amenable to aseptic nursing. I believe that the cross-infections were due to faulty technic. The cross-infections have appeared mostly in outbreaks and we have had intervals as long as fifteen months in the isolation wards without a secondary disease arising.

ABSTRACT OF DISCUSSION

DR. H. E. ROBERTSON, Minneapolis: Does Dr. Richardson place pupil-nurses in his isolation ward, or does he use trained nurses for this strict aseptic work?

DR. D. L. RICHARDSON, Providence, R. I.: For the first eighteen months of our work in this isolation ward we used

pupils, but after one or two experiences we felt that it was not safe. If we had pupils for six months or a year we should deem it feasible, but we have them for only two months. It is not long enough to trust them to nurse cases of measles and chicken-pox and possibly scarlet fever. If they are in the ward for several months' preliminary training then they can be trusted. Our object is to develop an aseptic technic. The nurse is under strict supervision for a certain period of time because we must have faithful assistants. The work in fact depends entirely on the nurses. They are the ones who care for the patients, and it is necessary to enlist the cooperation of every one in the hospital to insure success. I am glad to say that in our work every one has imbibed the spirit of aseptic nursing and does not fear the diseases in any way, being careful to avoid any opportunity of contact.

HOLLOW FOOT—PES CAVUS *

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An increase in the concavity of the longitudinal arch of the foot is of frequent occurrence. In some persons it is entirely normal and causes no symptoms whatsoever. It may, however, become so great as to constitute a real deformity, and in severer cases be quite as disabling and painful as the worst flat-foot. Like flat-foot, its development is usually insidious and may be due to several different causes. The essential feature is the increased concavity of the arch with a shortening of the structures of the sole. Dorsal retraction of the toes is usually present and bears an important relation to its development, but is not a part of the cavus itself. It is usually associated with some malposition of the foot, as varus or valgus, equinus or calcaneus. It is more frequently associated with equinus or equinovarus. So-called true or essential cavus is rare. The deformity may be fixed or reducible.

In the earlier cases the normal contour of the foot can usually be restored by simple manipulations, but in the fixed cases changes in the bones and soft parts make this quite impossible by any such simple measures. So in the treatment, milder measures are commonly sufficient in the earlier cases, while in the fixed condition operations on the bones and soft parts are frequently necessary to restore in a measure the normal condition of the foot.

Such is a brief outline of the condition with which we are all familiar. We are not, however, so familiar with the etiology and development of this affection. It was this obscurity surrounding the origin and development of several cases under our care that first suggested to me an attempt at a better understanding of the whole subject of cavus. Several lines of investigation were considered but it was early seen that a thorough knowledge of the mechanism of the deformity was an essential factor in them all. Thus my study was naturally directed to this phase of the subject which I finally determined to make the dominant part of my paper after realizing the futility of attempting to present at this time a complete survey of so large a subject. While this determination leaves much to be desired in the way of unraveling questions of obscure etiology, etc., it has to commend it the virtue of directness and concentration of effort on one essential at a time. General principles of prophylaxis and treatment will be referred to and etiology will be incidentally discussed.

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

THE MECHANISM OF CAVUS

The essential deformity of cavus is limited to the region of the tarsus and metatarsus. The long rigid metatarsals, with the slightly movable cuneiforms, the scaphoid and the cuboid, form the front part of the arch, while the astragalus and os calcis form the back part. Between these two portions is the mid-tarsal joint where the greatest amount of flexion takes place. Rotation around a shifting oblique anteroposterior axis passing through the navicular, the head of the astragalus and the posterior part of the calcaneo-astragaloid articulation adds a varus or a valgus position to the foot. The concavity of the arch is normally maintained by the shape and arrangement of the bones, the ligaments, muscles and fascia of the sole and the muscles of the dorsum of the foot. The bones, ligaments and fascia are passive in their function and depend on the active muscles to maintain their proper relations and tone. The rigidity of the bones preserves the general form of the foot in paralysis of the muscles, but the ligaments and fascia only imperfectly perform their functions in this condition. The muscles are the prime factors in maintaining and increasing the arch, and disturbance of their function is responsible for the development of most of its deformities.

Thus the muscles in the sole of the foot, including the long flexors passing to the toes, tend to increase the concavity while those attached to the dorsum of the foot both in front and behind the ankle exert their influence in the opposite direction.

The strongest extensor of the arch is the Achilles tendon acting on the posterior part. Paralysis of its muscle is a common cause of cavus, the so-called paralytic type accompanying calcaneus. The mechanism is very simple here and needs no further discussion. This is the only arch extensor behind the ankle and so is the only muscle in this region whose weakness can give rise to cavus. If the other muscles of the foot are also paralyzed, of course, cavus may not develop.

The conditions in front of the ankle are more complicated. Here the tibialis anticus is the chief opponent of the gastrocnemius and soleus, and a strong extensor of the arch. It is aided by the peroneus tertius and the long and short extensors of the toes.

The extensors of the toes are weaker than the tibialis and act only indirectly on the arch. This indirect action, however, is exerted in conjunction with the flexors of the toes and is of the utmost importance in controlling the stability of the arch.

So fundamentally important is this interrelation of the flexors and extensors of the toes in preserving the normal condition of the arch that, if we leave out of account the paralytic calcaneus and possibly the congenital types, I believe it is safe to say that a perversion of the normal reciprocal action between the flexors and extensors of the toes can account for most, if not all, of the remaining types of cavus. Of course perversion is an extremely elastic term, yet this general conclusion, if true, by narrowing the field of endeavor offers a distinct advance in the approach to a solution of this obscure problem and incidentally a justification for this paper.

I shall attempt to substantiate this conclusion and make clear the character of the interaction.

A careful study of the normal interaction of these muscles will best lead to an appreciation of their action under abnormal conditions.

In the normal foot with properly balanced muscles the toes lie extended directly in front of the heads of the

metatarsal bones with neither dorsal nor plantar deviation. This is the position of rest in which the muscles most easily maintain their balance. The foot is usually at right angles with the leg or slightly extended. Active flexion or extension of the toes immediately affects the flexible arch, and in this manner: dorsal extension increases the concavity, and plantar flexion decreases it. This can easily be determined by trying it on a normal foot. Neither group of muscles acts directly on the bones of the arch; their action on the toes is responsible for the change. This change of the arch is explained as follows: The centers of rotation in the metatarsophalangeal articulations are near the centers of the heads of the several metatarsal bones. The tendons pass respectively dorsal and plantar to these centers to their attachments to the phalanges and maintain the arch in its normal or resting position, when the toes are straight ahead; but let the toes be actively or passively extended, the flexor tendons on the under side necessarily must be pulled upward over the rounded heads of the metatarsal bones to allow the toes to take their new dorsal position. In other words, more of the flexor tendon is distal to the head of the metatarsal than was the case at the beginning. In order for this to occur the flexor tendon must stretch an equal amount or else the span of the arch must be just so much diminished; that is, if ½ inch of a flexor tendon is drawn up in front of a metatarsal bone, it means that the muscle from which it came stretched ½ inch or that the chord of the arc which it originally spanned was shortened ½ inch. Of course the tendon itself does not stretch although the muscle may relax. Either one or both of these two things, relaxation of the muscle or shortening of the chord of the arc, must always occur to allow dorsal extension of the toes. It is probable that normally both occur. If the tendons were fixed cords, the second method, by shortening the arch, would be the only possible one. Two sets of flexor tendons are concerned in this action, the long flexors passing behind the ankle and the short flexors lying entirely in the sole. The function of the latter is not affected by movements at the ankle, while the function of the long flexors is somewhat affected by its movements. When the foot is extended they are slightly relaxed and when it is dorsally flexed their tension is somewhat increased. This relaxation of the long flexor tendons in extension of the foot tends to weaken their effect in the previously mentioned interaction. This tendency, however, is slight as they pass so near the axis of motion at the ankle that flexion or extension of the ankle makes very little difference in their ultimate action. As they are much the stronger flexors of the toes this slight loss in foot extension probably still leaves them the most effective flexors of the toes. On the other hand, the dorsal extensors of the toes pass a greater distance in front of the axis of motion at the ankle and are markedly increased in their capacity to extend the toes by strong extension of the foot and thus gain definite power over the flexors that easily maintained their balance in the normal or resting position of the foot. Much that has been presented to amplify the simple observation that dorsal extension of the toes increases the concavity of the plantar arch can be used with equal effectiveness in showing the converse to be true, that plantar flexion of the toes decreases the concavity of the arch.

While I am at present especially concerned with the production of cavus, a brief consideration of the manner in which a decrease in the concavity of the arch is produced will be of distinct value in emphasizing the force of the original statement regarding the fundamental importance of the interaction of the flexor and extensor tendons of the toes in health and disease.

In active or passive plantar flexion of the toes the dorsal tendons are drawn beyond the heads of the metatarsals. This necessitates a lengthening of the dorsal tendons or a dorsal movement to an equal degree of the distal end of the arch.

The dorsal muscles may relax and thus allow some of the lengthening, yet they must be kept fairly active to maintain the position of the foot against the extending force of the plantar flexors. This disturbs the equilibrium of the resting position and throws an increased extending force on the front of the arch that is not present during rest. It is probable that relaxation of the extensor muscles and dorsal movement of the distal end of the arch occur together under mormal conditions. If the dorsal tendons were fixed cords dorsal movement only would take place. Dorsal movement of the front of the arch can take place in just one other way and that is by extending the muscles of the calf allowing dorsal flexion at the ankle. The large size of these muscles, however, and their habitual synergic action with the flexors of the toes practically exclude this as a normal method of compensation. The short dorsal extensor would not be affected by the ankle movements.

In health the various changes in the arch are purely physiologic and the normal resting position of the foot is readily resumed, but under pathologic conditions this position either cannot actively be assumed or if assumed cannot be normally maintained.

Applying these principles in certain pathologic conditions we shall now see how well adapted they are to explain the changes that initiate cavus.

The disturbed action of the flexors and extensors is usually secondary in nature, the real affection being in the synergic muscles. Thus the originally affected muscles primarily destroy the balance of the foot and the perfectly physiologic action of the flexors and extensors under the changed conditions produce the deformity.

Usually back of the muscular affection is the nervous lesion, primary muscular dystrophy as a cause being a rare possibility and quite outside of my experience.

As a simiple and instructive illustration let us take the familiar anterior tibial paralysis of acute poliomyelitis. First, there is a foot-drop due to the unopposed action of the muscles behind the ankle. With the foot-drop there is overextension of the toes and in strict accordance with the law of interaction of the flexor and extensors of the toes an increase in the concavity of the arch. At first raising up the ball of the foot completely restores the arch and corrects all deformity. Later, however, contractures of the muscles behind the ankle, changes in the muscles, fascia and bones of the foot make complete restoration in this manner impossible.

This is a very common form of cavus and is usually associated with varus or valgus. When the posterior tibial and possibly other muscles behind the internal malleolus are weakened valgus develops usually with a diminished equinus, lessened dorsal retraction of the toes and a loss of the cavus action. Cavus may not develop at all if the extensors of the toes are also paralyzed or if both flexors and extensors are paralyzed, as in extreme cases. Going from this flagrant example through the gamut of mild and insidious attacks of this and other affections on the innervation of the tibialis anticus, it is readily seen how difficult it may be in a given case to determine the etiology or the primary seat of the affection. With all muscles functionating and

the reflexes apparently normal and only such atrophy as goes with the limited action of the deformed foot, it may be difficult or impossible even to tell which is the primary lesion. We are not always able to obtain a history of earlier paralysis, particularly in the milder cases or in infancy before commencing to walk. I have had several cases in which an early recognized poliomyelitis was the known factor, while in similarly appearing cases no history of a definite attack could be adduced, although it was quite probable that the primary disturbance was the same. Lesions of the nervous system lying both proximal and distal to the portions affected in anterior poliomyelitis may affect similar areas of distribution and initiate the development of cavus. The various forms of neuritis of toxic or other origin may affect the distal elements, and even a primary myositis of the tibialis itself may be responsible for its development.

More obscure are the lesions proximal to the anterior horn cells of the cord lying in any part of the motor route from the cerebral cortex to the termination of the pyramidal tracts. These are usually accompanied by evidences of spasticity, as in the frank cases of Little's disease, yet, just as the mild poliomyelitis may have passed entirely unrecognized, so may a lesion of the upper neurons remain so obscure as never to have suggested its presence. Here a careful study directed to the upper neurons involving both the mental and the motor processes may help to locate the primary seat of trouble.

One of our patients with bilateral cavus and dorsally dislocated toes also had a spina bifida occulta.

The classic symptom-complex of equinus, retracted great toe, and cavus in Friedreich's ataxia is a striking demonstration of this local mechanism. Again, taking the example of the shortened limb with all the muscles physiologically perfect, the constant use of the extended foot develops a compensatory cavus while enabling the toes to reach the ground. High-heeled shoes may thus have a decided influence toward the development of cavus although my experience does not allow me to be positive on this point.

That disturbance of the interossei muscles may lead to the development of cavus was suggested by a recent case in my office of a young woman presenting dorsally retracted toes and complaining of trouble in the anterior region of both feet. The retraction was only slight but the possibility of a later cavus if neglected was mentioned at the time. She was wearing shoes several sizes too short for her. The situation of the interossei, arising from the metatarsals only, prevents their having any direct influence in the form of the arch, but their peculiar function of flexing the first phalanx and extending the last two has a most important influence in maintaining the normal balance between the strong flexors and extensors of the toes. Situated as they are in a part of the foot most commonly abused in the various improper forms of shoes, occasional serious disturbances in their function should not surprise us. Indeed, the wonder is that they do not occur more frequently. With a weakening of these muscles the balance is disturbed and the dorsal extensors gain the advantage. The toes become retracted and the arch increased. Thus the weakness of the smaller muscles destroys the balance and the large muscles produce deformity. A somewhat similar effect on the fingers is well known in paralysis of the ulnar nerve supplying most of the intrinsic muscles of the hand. Local trauma of these muscles may be sufficient to produce these results or their innervation may be disturbed by affections of the nervous structures distributed throughout the lower and upper neurons. There are still cases of cavus in which the origin remains obscure. The mechanism is apparently the same as in those whose origin can be traced, but the etiologic factor eludes detection. These have been considered as due to developmental deficiencies of the nervous system disparaging the normal balance of the muscles and initiating deformities. Other deformities than cavus may thus arise.

Many cases of adolescent cavus appearing in children 10 to 13 or 14 years of age, the so-called true or essential cavus, have been ascribed to this indefinite origin, but it is very probable that the more carefully we search for the many causative factors with which we are already acquainted the fewer will be the number remaining in this obscure class.

TREATMENT

The treatment naturally resolves itself into that of the general condition and that of the local condition. With most of the cases secondary to previous lesions of the nervous system it is evident that most of the treatment will be of the local condition.

The necessity for proper balancing of the foot is obvious. In the early reducible stage, this is frequently simple, by braces or other means best suited to the individual case or to the practice of the surgeon. In the later, fixed condition, nothing short of very forcible correction will in a measure relieve the deformity. Resection of a wedge from the arch with section of plantar soft parts is often necessary. Various special operations have been devised and used with more or less success in proper cases.

CONCLUSIONS

Hollow foot, or cavus, is usually accompanied by some malposition of the foot as varus or valgus, equinus or calcaneus. So-called true or essential cavus is rare.

Cavus is practically always of neurogenic origin.

Leaving out of account the paralytic calcaneus and possibly the congenital types, it is safe to assume that a perversion of the normal reciprocal action between the flexors and extensors of the toes can account for most if not all of the remaining types of cavus.

Simple measures commonly suffice to restore the normal balance in the initial stages, while in the fixed deformity severe force, frequently accompanied by resection of bones and section of soft tissues is often necessary to restore in a measure the normal condition of the foot.

7 West Madison Street.

ABSTRACT OF DISCUSSION

Dr. Gilbert L. Bailey, Oak Park, Ill.: This is one of the most common types of deformity with which we have to deal and, while I agree with Dr. Parker about many cases being of nervous origin, my experience has been that the most common type is that with large calluses on the ball of the foot and backward displacement of the toes, for which no central or peripheral nerve origin can be found. More stress should therefore be laid on the disease of the interossei muscles in causing the deformity. This condition is often brought about by the compression of tight shoes or other traumas and it is more analogous to a myostitis than to a neuritis, suggesting Volkmann's paralysis. In many instances a radical bone operation is the only means of curing the condition because treating either the flexor or the extensor tendons seems to afford only temporary relief. When operation is necessary, I have had excellent results with Dr. H. M. Sherman's operation and with Dr. Philip Hoffman's operation for shortening the metatarsal bones.

DR. JOHN L. PORTER, Chicago: It is most interesting that many of these cases first develop signs of cavus at about the age of adolescence, and I hope that some day someone will tell us why, if the etiology of the condition is paralytic, it develops at the age of puberty more frequently than at any other time.

I should like to call attention to the operation described and published by Dr. H. M. Sherman several years ago, which, in my hands, has proved efficient; that is, the transplantation of all the extensor tendons from the phalanges into the heads of the metatarsal bones, so that when the lumbricales cease to functionate these act as elevators of the metatarsals. If the after-treatment is prolonged for six months or a year, the action of the dorsal extensors holds up the heads of the metatarsals and makes a satisfactory result.

DR. EDWIN W. RYERSON, Chicago: I wish to add a word regarding the usefulness of the operation published by Dr. Sherman. I do not think that he performs his original operation, which has several disadvantages; but it is most useful and, in a late communication from Dr. Forbes, I am told that a slightly different technic was evolved by him and warmly recommended. I have done this operation eighteen or nineteen times, with the best of results. The etiology is, as Dr. Porter says, obscure; but it seems likely that the condition is due, in large measure, to the wearing of improper shoes, which young people, and particularly young women, are forced to wear, because the shoemakers cannot be induced to make proper shoes. The short, narrow portion at the toes predisposes to throwing back the phalanges; and I think that this plays an etiologic rôle in more cases than I formerly believed that it did. I have been unable to find a nerve lesion in many of the cases, and it is hard to theorize as to why the interossei should be paralyzed with no paralysis anywhere else. I think that the condition is one of static rather than paralytic deformity in many cases.

DR. NEWTON M. SHAFFER, New York: The point raised by Dr. Porter about the cases occurring at the period of adolescence recalls what I have thought for many years; and that is the peculiar fact that this condition of the feet and lateral curvature both develop at about the same age. My study of these cases has been, I think, wrong; and I believe that you will find in almost every case some disturbance of the tendo Achillis. With the calcaneus variety of the deformity, the heel is thrown forward; in others, the tendo Achillis is shortened. In a certain class, we have hollow foot; and in other cases, we have flatfoot. It all depends on the tonicity of the plantar tissues. In the nervous variety, these tissues are resistant, and in other cases the nutrition is low and the foot gives way and flatfoot follows. In all cases, I think, the tendo Achillis is involved. It is short in many cases; and that led me to describe a condition, some years ago, called non-deforming clubfoot. The tendo Achillis plays an important part in all these conditions.

DR. JOHN RIDLON, Chicago: I am sorry to see that Dr. Parker's efforts and this discussion have not led to any more intelligent knowledge of the situation than we have had heretofore. Apparently it is impossible to get the idea of what a real hollow foot is into the heads of most men. Dr. Shaffer's non-deforming clubfoot, which I have known of for thirty-five years, has absolutely no relation to the condition that Dr. Parker has tried to write about. To be sure, pes cavus usually begins to develop at about the age of adolescence; to be sure, lateral curvature of the spine is usually recognized at about that time, but it has been developing for a long time. But one cannot conceive of any real relation between the two.

The shoes of women are frequently ridiculous and quite unlike the feet of any normal person; but the fact that they wear high heels has never, so far as I know, been a causative factor in pes cavus—I have never seen a pes cavus in a woman wearing high-heeled shoes. I prescribe more high heels than low heels for the women that come to me complaining of their feet. As a matter of fact, pes cavus rarely ever occurs in women. It practically always occurs in males—in adolescent boys. Dr. Porter will remember, I think, that he and I felt surprised at finding in a patient of his from Iowa the first case of pes cavus in a woman that he and I had ever seen. The view that there is a relation between the condition and high-heeled shoes, or pointed-toed shoes, is certainly a mistaken one. We do get, in the women who wear such shoes, feet with the toes bent backward, and also other deformities of the feet; but that condition is not under discussion, any more than Dr. Shaffer's non-deforming clubfoot is.

DR. CHARLES A. PARKER, Chicago: I knew that some interested member would be much disappointed in the results of my paper. It was founded, however, on my experience. I had seen cases of cavus of different origins, and, as I came to study out the problem, one of the first things that came to me was the mechanism of cavus. I looked over case records and found that I had never seen a case of cavus of the type of adolescence. That is why I did not write on it. I have seen these patients when they were old, but never happened to follow them through the adolescent period. I, therefore, dropped out that part of the subject from the paper, and included only the types of the condition that I could study out for myself, although I had read the papers of Dr. Shaffer and others.

The point that I believe will stand is that the essential factor in the mechanism, without going further, which I hope sometime to do, is the disturbance of the balance between the flexors and extensors of the toes, arising either in the muscle, the nerve, the spinal cord or the brain.

FIELDS FOR RESEARCH IN ORAL SURGERY *

VIRGIL LOEB, A.B., D.D.S., M.D.
ST. LOUIS

To discuss the various possible avenues of research in that branch of medicine known as stomatology would require a paper the reading of which would far exceed the time allotted to me. I have, therefore, selected a single division of this branch, and shall confine myself entirely to the discussion of some of the fields for research which are still not definitely worked out in oral surgery. To facilitate this discussion, the investigative fields are divided into five classes: embryologic, anatomic, bacteriologic, physiologic and chemical. Moreover, I shall not attempt to enumerate or to discuss all of the problems in each class, but shall mention only a few of the more important ones.

The embryologic problems for study comprehend the following: cleft-palate, harelip, fistula of the lip, fissure of the tongue, fissure of the cheek, facial asymmetry and congenital teeth, of which cleft-palate and harelip, alone or combined, are the most frequent. A great deal of work has already been done on the etiology of the latter deformities; cleft-palate has even been produced experimentally in animals.

Many theories have been advanced as to the cause. That family prevalence as an important factor was long ago established by cases reported by Mercer Adam,[1] notably of a woman whose five children all had harelip, and by Merkel[2] in his reference to Anna's observation of a man who had by his first wife eleven children, nine of whom were born dead, and two alive, with harelip and by his second wife four children, two of whom had the same deformity, and one cleft-palate. Direct heredity is noted in the case of R. G. H. Butcher[3] in which both

* Chairman's address before the Section on Stomatology of the American Medical Association at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Adam, Mercer, Month. Jour. Med. Sc., 1854, ix, 402.
2. Merkel: Handbuch der pathologischen Anatomie, 1812, i, 19.
3. Butcher, R. G. H.: Dublin Jour. Med. Sc., 1877, lxiii, 426.

mother and child had double complicated harelip with entire absence of the palate. Many more cases of heredity have been noted in more recent times.

P. Albrecht[4] pointed out the fact that the commonest position for cleft of the alveolar arch, accompanying harelip, corresponds to the interincisor suture, running through the premaxilla and separating the central from the lateral incisor teeth. Formerly it was the belief that the fissure in the bone corresponded to the suture between the premaxilla and the superior maxilla and that therefore the incisor teeth (after eruption had taken place) lay internal to it. Ballantyne thinks that too much significance is given to the morphology of the incisor teeth in arguments for and against Albrecht's views. He[5] says,

> After all, it is not to my mind an unthinkable theory that the cause, which arrests the development of the face and makes permanent what ought to be a transitory arrangement of parts, may also act on the dental germs in the jaw and lead one germ to atrophy and another to increase in size and perhaps divide in two. The facts of embryology must first be thoroughly investigated (teratological developments being utilized as hints to direct research), and then the general principles of teratogenesis must be applied to the scrutiny of the results; if this be done, I feel sure that the actual mode of production of harelip and all other malformations will be made plain. Of course this does not mean that the cause which leads to the arrested developments will be discovered, although we may be in an infinitely better position to make surmises regarding its nature; we shall then, I expect, find we are dealing with the germinal factor.

Continued work along this line with similar investigation concerning the other anomalies of development should yield results of great value.

Anatomically, a number of interesting fields present themselves for investigation. Certain surface areas are yet to be determined. It would be of service, for instance, to know the surface area of the hard and soft palates and of the tongue. Last year I presented a paper[6] before this Section, and I had hoped to present at this meeting a paper on the superficial area of the palate; but as my data are not sufficiently complete, I am compelled to postpone it.

The papillae of the tongue offer interesting problems for investigation. The studies of the arrangement of these papillae, especially the vallate, by Giacomini, Stahr, Hopf and Edzard, and Kunitomo[7] seem to show that fairly well-defined types exist in the white and colored races. This deserves further study.

Another anatomic problem concerns the exact location of the pharyngeal end of Rathke's pouch. That this is worthy of investigation has been shown by Frazer.[8]

Much might be gained by a comparative study of the musculature of the lips and tongue in the various races and the physiologic significance in pronunciation, while the distribution of the lymph-vessels in the walls of the mouth and in the tongue and soft palate is worthy of renewed study.

The bacteriology of the oral cavity has been pretty definitely worked out by Miller,[9] who described more than forty germs which he had isolated. He admitted that there were still others to be studied.

Such problems as the ages (of persons) at which the different micro-organisms appear, the relative virulence at different ages, the influence of the accumulation of deposits around the roots of the teeth on the production of these germs, and vice versa, are all of importance. Specific germs which cause caries and certain cases of the so-called pyorrhea alveolaris are yet to be determined.

Recently a great deal of attention has been drawn to the relation which the absorption of toxins from different forms of alveolar abscess bears to arthritic disturbances and other toxic manifestations in various organs of the body. Concentrated investigation along this line should yield results which will prove of great value in the diagnosis and treatment of many obscure and even remote conditions.

The saliva presents a number of important physiologic problems for investigative work.

Goodman[10] asserts that the sputum of tuberculous patients contains albumin. Normally the saliva and sputum do not contain this substance. The assertion made by Goodman which has been denied by other workers will bear further investigation in order to determine the significance of albumin in pulmonary tuberculosis.

Neubauer and Fischer[11] and Sanford and Rosenbloom[12] all assert that in carcinoma of the stomach there is an enzyme present which splits up glycyltryptophan. Warfield[13] and others assert that there is in the normal saliva the same enzyme which does the same thing. This is of such vast importance to the clinician that further work should be done to substantiate or to disqualify Warfield's statement.

Quite a little work has been done on the sulphocyanid which is found in the saliva. This substance is found in excess in smokers and it is a question as to whether or not it is due to some metabolic process.[14]

Fricker's[15] work opens up a new problem: Is the saliva a stimulant to the gastric juice? If so, is it due to carbon dioxid as he suggests or to the presence of a hormone? The view that the latter theory may be true fits in well with the work of Bayliss and Starling, that many of the body functions are due to the influence of the so-called hormones.

Another field for investigation concerns the formation of tartar. Is the ordinary explanation correct? Are the calcium salts, held in solution, precipitated by the action of the carbon dioxid in the saliva, or is tartar due to some other chemical action, or perhaps to bacterial action?

Of course this problem should perhaps come under the chemical or bacteriologic subdivision which I have made for the classification of research work, but it also concerns the physiology of the saliva.

So much significance is given to the urine and feces, does it not seem plausible that the time will come when the saliva, too, will undergo a routine examination as do these two excretions?

Fields for research in the oral cavity, of a purely chemical nature, are perhaps less numerous than those of the other divisions. Mention has already been made of formation of tartar. Under this head would also come a study of the combinations which are formed by

4. Albrecht, P.: Centralbl. f. Chir., 1884, xi, 521. Deutsch. Ztschr. f. Chir., 1884, xxi, 201.
5. Ballantyne: Antenatal Pathology and Hygiene, ii, p. 385.
6. Loeb, Virgil: A Study of the Cubic Capacity and Superficial Area of the Maxillary Sinus, THE JOURNAL A. M. A., Aug. 3, 1912, p. 359.
7. Kunitomo: Ztschr. f. Morphol. u. Anthrop., 1912, xiv, 339.
8. Frazer: Jour. Anat. and Physiol., 1911, 45, 190.
9. Miller, W. D.: Die Mikroorganismen der Mundhöhle, 1892.
10. Goodman, Edward H.: The Diagnostic Importance of Albumin and Albumose in the Sputum and Their Relation to Occult Blood, Arch. Int. Med., August, 1911, p. 163.
11. Neubauer and Fischer: Deutsch. Arch. f. klin. Med., 1909, xciii, 499.
12. Sanford, Charles H., and Rosenbloom, Jacob: The Glycyltryptophan and Tryptophan Tests for Cancer of the Stomach, Arch. Int. Med., April, 1912, p. 445.
13. Warfield: Bull. Johns Hopkins Hosp., 1911, xxii, 150.
14. Mendel and Jackson: Am. Jour. Physiol., 1901, v, 274.
15. Fricker: Therap. die Gegenw., September, 1910.

the action of the different tooth-powders and pastes and mouth-washes which are used so generally by the public. The chemical combinations resulting from such mixtures may play a part in the production of certain oral lesions, particularly those of a purely dental nature.

The etiology, diagnostic relations and treatment of several diseases of the oral cavity are still uncertain, and for this reason offer a promising field for research. Among the more important ones the following are worthy of study: trifacial neuralgia, stomatitis aphthosa, leukoplakia, ankylosis (certain types), pyorrhea alveolaris or interstitial gingivitis, chronic enlargement of the salivary glands, particularly the parotid, scurvy, noma and malposed teeth.

I have brought this subject to your attention for the purpose of urging on you the great necessity for encouraging work along the investigative side of oral surgery. Until those who are devoting themselves to this subject impress on their students and associates the full value of research in this connection, we are bound to become routinists and no progress can be made.

537 North Grand Avenue.

ABSTRACT OF DISCUSSION

DR. F. B. MOOREHEAD, Chicago: One thing ought to be said about research, and that is that it cannot be bought; neither can original investigators be bought. The original worker, like the poet, is born, not made. A peculiar fitness for that kind of work must be inherent in the individual. When a man has been in practice for a few years and has become fixed in his habits, he is not likely to change. Our only hope lies in the undergraduate student, who is still in the formative period. I believe that the hope of the future is in selecting students who have the scholarship, the vision, the inclination and the natural ability to do original work, and in starting them out before they become established in the routine of dental practice. We must also remember that the medical profession is taking as much interest in the oral cavity in its relation to the composite organism as is the dental profession, perhaps more in some instances. The dental profession should take the initiative in this work. We should point out the relation of the oral cavity to systemic disease. We ought to do as much for the oral cavity as the eye specialist has done for his work and as the ear, nose and throat specialist has done for his work. We have not done it, and the fact of the matter is that at present we are being driven into the corner by the medical man, and, like a stag at bay, we are now fighting absolutely in defense of our position.

The medical college of to-day is paying more attention to the oral cavity than it has ever done before, and more work is being done by the undergraduate medical student in this line than ever before, and that is significant. May it not be true that if we do not do our work, the medical men will take it on themselves to develop the diseases of the oral cavity as a special field of practice?

DR. TRUMAN W. BROPHY, Chicago: When in the history of our country it became necessary to create currency for the use of the people, greenbacks were issued in enormous quantities. The currency was increased to a degree that brought the value of a dollar down to about forty cents in the estimation of the world. When the time came for returning to specie payment, the president of the United States decreed that the only way to resume specie payments was to *resume*, the advice of many statesmen to the contrary notwithstanding; so the nation resumed specie payments. So, when it comes to the question of scientific development, the only way to acquire information along scientific lines is to acquire it, and the way to acquire it is to have men do that work who are well prepared and placed in the proper environment to do it. As Dr. Moorehead said, a busy practitioner cannot devote much time to laboratory work. As a rule, he has neither the time nor disposition to do it. Men must make that work a business. I shall expect in the next decade to see such institutions as the Forsythe Laboratory established in Boston with a liberal endowment, and the Thomas W. Evans Institute, which also has a liberal endowment, gather together men prepared to engage in scientific work. Unfortunately, in our own country few men have taken up the study of that branch of pathology particularly associated with the mouth.

DR. T. L. GILMER, Chicago: The paper is timely. It would be impossible for us to discuss some of the things presented because there has not been sufficient development to arrive at definite conclusions.

Dr. Moorehead spoke wisely when he said that research work cannot be bought. When we look back over the history of medicine and that branch which we represent and consider the men who have made the great discoveries, we see that they have not been hired men. To do original research work, a man must be especially fitted for it, by temperament and by nature. He must have a zeal for his work that is overpowering; then he succeeds. Such men are not made; they are born.

I am doubtful as to the utilization of students for this work, since it seems impracticable to expect good research work of men who have had no practical experience. Indeed, one should have had much practical experience, otherwise he will not know the full value of that for which he looks. If young men in their college work exhibit inclination for research work they should be stimulated and encouraged in that direction.

There is one class of men specializing in dentistry at present to whom I think this paper should appeal. I refer to those who call themselves "pyorrhea specialists." I have no patience with any man calling himself a specialist who is not doing good research work in his special field. Are all pyorrhea specialists as a class well informed in histology, pathology and bacteriology of the special tissue they operate on? If they are not, they are not worthy of the name of specialists.

DR. WILLIAM C. FISHER, New York: Speaking of buying research work, the First District Dental Society of New York has secured the services of the most eminent physiologic chemist in the East, and he has for two years been working on the saliva. He has given us few facts in that time, and the reason is that he is not a stomatologist or a dentist. He is a chemist.

The dean of one of the largest dental departments of a university in the East told me over a year ago that for the past seven years he has gone to every class and watched it carefully in order to find a man of whom he can make a research worker, but he has not found him.

DR. G. V. I. BROWN, Milwaukee, Wis.: As suggested by Dr. Brophy, there are now a number of propositions leading toward the establishment of laboratories in which work of this kind can be done. They must have an endowment which will permit them to pay persons to carry on this work. As has been said, a man who is busy making a living cannot devote himself to research work, and a man's education to fit him for this work should begin early; but the trouble is that the men who have the education and who have the time are often men who have not had the foundation of a practical experience which teaches them to know the direction in which their researches can be carried on to best advantage. Those who have felt the need of this kind of work should give it definite, concerted and systematic thought, so that these various projects may be launched successfully and in a direction which will yield the greatest good in the shortest possible time.

DR. NELSON T. SHIELDS, New York: In research work, and especially in research work with regard to the oral cavity, which lies so near the central nervous system, if we would bend our efforts in the direction of the neuropathologist we should find that the origin of pyorrhea, etc., results directly from the degeneration of the entire system, caused by the fact that the night's rest is not sufficient to restore the loss of tissue which takes place during the day.

DR. WILLIAM H. DEFORD, Des Moines, Iowa: I have been doing research work for a number of years and consequently am much interested in this matter.

Dr. Loeb's warning is timely. We should take greater interest in these matters pertaining to our everyday work, because, if we do not, the medical men will do it first, for they are fast entering this field of investigation which rightly belongs to the stomatologist and dental surgeon. Recently, Dr. Charles H. Mayo emphasized the danger of local infections resulting in constitutional disturbances, and he warned the dental profession that unless they were active in working out the etiology of pathologic conditions found in the buccal cavity the medical profession would certainly do it for us, and the credit would be theirs. I am heartily in accord with the work being done by the research committee of the National Dental Association. If the right men can be induced to devote their lives to working out these problems for us, giving us the results of their labors, it will meet with hearty approval, but I hope that this will not interfere with individual research work. We should not rely entirely on the work of professional research investigators. The outline furnished by Dr. Loeb is a most excellent one, and no doubt it will stimulate men to go into these matters more thoroughly than they have done in the past.

DR. VIRGIL LOEB, St. Louis: When I chose this subject, I felt that the question of research work was so important that it could not be brought before the profession too often. When I started to write the paper, however, I found that it was indeed quite an undertaking to outline the various branches of work which are open for investigation. The discussion has brought out a number of points which I could not incorporate in the paper. One is the question of who should do this work; another is the question of how it should be done.

It has been said once or twice in the discussion that the busy men cannot do research work. I think that it is he alone who should do it. It is the man who is in contact with definite problems daily who can determine the principles which must be worked out.

THE ETIOLOGY OF TRIFACIAL NEURALGIA OR TIC DOULOUREUX AND CLINICAL TREATMENT *

NELSON T. SHIELDS, D.D.S.
NEW YORK

The fundamental cause of trifacial neuralgia lies in some structural change. The really painful tic usually occurs about the period of middle life or later and is generally caused by a lesion or lesions within the teeth. All strain, whether mental or physical (and this comprises that common to all diseases and conditions), which a normal amount of sleep cannot relieve or during which the tissue consumed cannot be restored, these abnormal conditions are the foundations for an earlier degeneration of the nerve structure. No injury to the teeth from external causes, and no injury to the dental pulp from constitutional causes ever repairs itself. That is, should a tooth be broken or decayed it can never be restored by natural means, or should a pulp nodule or dentinal tumor form within the pulp from constitutional causes it will never be absorbed. A normal life should be led more on account of the teeth than any other organs of our bodies, because within the teeth branches from the maxillary nerve and from the mandibular nerve terminate within an organ, the function of which is to make tooth structure from without inward, after the manner in which teeth are formed.

The odontoblasts within the dental pulp (the pulp being the remainder of the formative organ which made the tooth) receive the irritation from any local injury and cause tooth structure to form within the pulp at the base of the fibrillae conducting the irritation. This is most dangerous at the cervix where the blood has to circulate around the secondary dentine to the pulp chamber beyond. The odontoblasts likewise cause calcifications to form within the pulp from any constitutional cause which affects the vasoconstrictor nerves, a consequent increased flow of blood through the arteries results, followed by their dilatation and the immigration of the leukocytes. Thus the arteries occupy more than their normal space in the canal, while the leukocytes fill the meshes of the connective tissue and produce compression on the vessels of exit. This irritation or hyperemia will cause pulp nodules or tumors to form throughout the entire pulp causing lesions and violent tic douloureux before strangulation occurs.

Frequently, in severe cases, the teeth, the alveolar process and gums are in perfect condition save the abrasion on the articulating surfaces which is normal after the period of middle life. We must, therefore, in these cases, look for internal causes for irritation which are to be found in the presence of dentinal tumors or pulp nodules. These patients are about 60 years old and have a poor circulation. The family physician having exhausted all means of relief, the patient is about to be operated on either by having alcohol injected or by avulsion of the sensory root. General nervous irritability or neurasthenia is a term which has come into general use to indicate certain states of the nervous system which are characterized on the one hand by a series of negative symptoms manifested by lack of vigor, efficiency, and endurance, affecting usually a large number of nerve functions, and on the other hand, by signs of active derangement, which in part seem to occur as positive symptoms and in part are due to a failure of the mutual support and control which the different parts of our nervous system afford each other in health. The tension of the blood-vessels and their degree of contractivity are phenomena which are controlled by the vasomotor system.

We can generally find lesions within the pulps of teeth, where impacted teeth become infected, diseases of the teeth, alveolar process and gums, and maxillary and frontal sinus complications which are generally caused from the affected teeth.

The knowledge is valuable that any constitutional condition affecting the vasomotor system will cause irreparable injury within the dental pulp, and that the formation of tumors or calcifications in the structural change, or lesions which will result in trifacial neuralgia or tic douloureux.

TREATMENT

In simple cases a careful study will clearly indicate the teeth or tooth, which is the cause of the neuralgia. The pulps of the teeth involved should be extirpated by pressure using cocain anesthesia. After thorough extirpation by mechanical means, using suitable broaches, asepsis being maintained throughout, the apical portion of the root-canal should be filled with gold and the remaining portion should be filled with zinc oxychlorid. The zinc oxychlorid not only fills the remaining portion of the root-canal, but from its affinity for moisture, practically fills the dentinal tubules. This constitutes in my estimation a perfect root filling.

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* This is an abstract of the original paper presented before the Section on Stomatology, which was an exhaustive one and too long for the columns of THE JOURNAL.

This case will remain free from neuralgia until a lesion is formed within another tooth, when the same method of procedure should be employed. In severe cases of tic douloureux radical measures should be employed, and every pulp should be extirpated, the teeth filled as described and the mouth should be restored to normal health and usefulness. This will permanently cure.

Children suffering from the migraine type as described by Dana will generally be found to possess impacted teeth which should either be regulated to their normal positions or extracted.

By means of roentgenography infected impacted teeth can be revealed and then extracted. In most cases tic douloureux occurs after the patient has reached the age of 45, and has a poor circulation. I strongly urge the use of agents to induce a normal secretion of bile, which will favor restoration to health.

Maxillary sinus complications are generally caused from the teeth. Occasionally the frontal sinus is connected with the maxillary sinus, as has been demonstrated by Dr. Cryer in a number of human skulls. The tooth or teeth causing the sinus involvement should be extracted and the sinus treated and cured through the tooth socket. Both sinus involvements on the same side can be cured from the socket of the tooth extracted. A sinus involvement should always be cured through a tooth socket.

This treatment in my hands has been a permanent cure for trifacial neuralgia or tic douloureux.

61 West Fifty-Sixth Street.

TYPHOID FEVER IN THE CANAL ZONE

A STUDY OF ONE HUNDRED AND NINETY-FIVE CASES FROM THE CLINICAL AND BACTERIOLOGIC POINTS OF VIEW *

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AND
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ANCON, C. Z.

Climate, locality and race are known to affect various diseases to an extent that at times confuses the diagnostician who holds to the classical description of the disease in question. A study of 195 cases of typhoid fever occurring in this hospital from July, 1909, to July, 1913, was therefore thought to be of interest to the profession. Permission to write this joint paper was kindly granted by Dr. W. E. Deeks, chief of the medical clinic, and Dr. S. T. Darling, chief of the board of health laboratories.

Three papers[1] have previously been devoted to typhoid as found on the Isthmus of Panama during American occupation. These papers were presented prior to 1909, so that the following series represents another four-year period of American régime.

The cases under consideration in this paper have been collected from a section of Ancon Hospital in which the majority of the typhoid fever patients of the Canal Zone have been treated.

As to race the total series comprises 174 West Indian negroes, 9 Colombians, 6 white Americans, 3 Spaniards, and 1 Ecuadorian, 1 German and 1 Italian.

Practically all of the patients cited were young male adults employed as laborers in the canal construction. This is not due to case selection, but is the result of importation of young adults only. None of these laborers have ever had antityphoid vaccination.

During the four years covered by this paper there has been no epidemic of typhoid fever in the Canal Zone nor in the cities of Colon and Panama. A few of the cases included are the remainder of a small epidemic occurring in the early part of 1909. In this epidemic about 50 per cent. of the cases were found to be paratyphoid infections. These will be referred to later.

The fact that the great majority of our patients are tropical negroes gives us the advantage of observing the disease as it runs its course in natives of the tropics. On the other hand, we are at a disadvantage in obtaining accurate data from these patients concerning their illness prior to admission to the hospital. Our negro's idea of time and illness is very vague indeed. The onset of an insidious disease like typhoid fever is frequently difficult to obtain approximately correctly from an intelligent Caucasian. In the negro this amounts almost to an impossibility, as he habitually underestimates the time he has been ill. In the charts and tables shown the division of the disease into the customary periods of four weeks is based entirely on the negro's faulty history. We were forced to accept this method after having found all other schemes impractical.

DIAGNOSIS

The history as given by the negro patient is generally of no practical value and must be disregarded in most instances. As previously stated, a patient admitted at the end of the first week rarely claims more than three or four days' illness. Fever, headache and loss of appetite are usual complaints, but no more so than in malaria and many other minor affections. Vomiting is an infrequent complaint, especially when compared with malarial infection.

Physically we may find a patient who does not seem ill and who protests against having been ordered to the hospital for a slight rise in temperature, or, on the other hand, he may have been sent to the hospital in a deep coma. Either case may be in the first or last week of the disease. As a rule the thermometer shows only slight fever in the ambulatory type, but usually high fever or hyperpyrexia in the semicomatose and comatose types. The tongue is frequently heavily coated and often distinctly tremulous. The spleen was found to be enlarged, either by palpation or percussion, in 75 per cent. of our cases. The value of splenic enlargement in a tropical community is practically nil in its diagnostic significance, unless previous and present malarial infection can be definitely excluded. With rare exceptions, rose spots are imperceptible in the negro. Profuse sweating was not uncommon in our typhoid fever cases, but differed in no way from infections like malaria and tuberculosis. Diarrhea and tympanites, with the usually associated iliac gurgling, were the exception and not the rule in our cases. Epistaxis was a very rare symptom. Early in the disease a slow pulse as compared with the height of the fever was strikingly common, and quite distinctive from severe malarial and tuberculous infections. Later in a severe infection, rapid pulse and dicrotism of course supervened. Neurologic findings, that is, stupor, delirium, meningism or coma, vary greatly. They may be

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entirely wanting or they may form the most conspicuous feature of the disease. Albumin and casts were found on analyzing the urine, as in most other acute infections. We have kept no records of the diazo reaction.

The temperature course of our typhoid fever cases was as variable as the disease itself. The classical four-weeks fever curve was the usual type. Of the remainder, the majority ran a lower and more abbreviated curve. The protracted cases have usually been severe infections and have continued as long as seven weeks. Relapses have occurred both during the attack and after. Twenty-four, or about 12 per cent., of our cases relapsed. There was only one fatality in this number. All relapses were shorter than the primary infection. Recrudescences were few and of no importance. Typhoid fever usually confers lasting immunity against subsequent attacks, but this is not invariably the rule. A very interesting illustration of this fact occurred in our series (Charts 1 and 2).

A young Ecuadorian half-breed, S. R., was admitted Feb. 13, 1911, suffering with a typical case of typhoid fever. The Widal reaction was negative on the second day after admission. A blood-culture taken on the fifth day was sterile. The Widal was repeated on the thirteenth day after admission, when it was positive. The temperature returned to normal in the fourth week of the disease and convalescence was uneventful. The patient resumed his work, but again became ill and returned to the hospital April 1, 1911. He was seriously ill and typhoid fever was again suspected clinically. A blood culture taken on the third day was positive for *Bacillus typhosus*. The Widal was also positive on the fifth day. A severe typhoid fever course followed with alarming hemorrhage. During the third week an intercurrent relapse took place and the prognosis became grave. On the twenty-seventh day in the hospital the blood-culture was found to be positive for *B. typhosus* as before, while the formerly positive Widal reaction had become negative, suggesting a reinfection due to a repeated loss of antibody. Death occurred with hyperpyrexia on the thirty-fifth day. A necropsy performed by Dr. Herbert C. Clark, pathologist of the board of health laboratories, showed the following: Acute and chronic ulcerative enteritis of the ileum; acute ulcerative colitis of the cecum and ascending colon; multiple congested and edematous, coin-shaped cicatrices of the ileum and jejunum and the other usual findings of typhoid fever. Post-mortem cultures from the spleen were positive for *B. typhosus*.

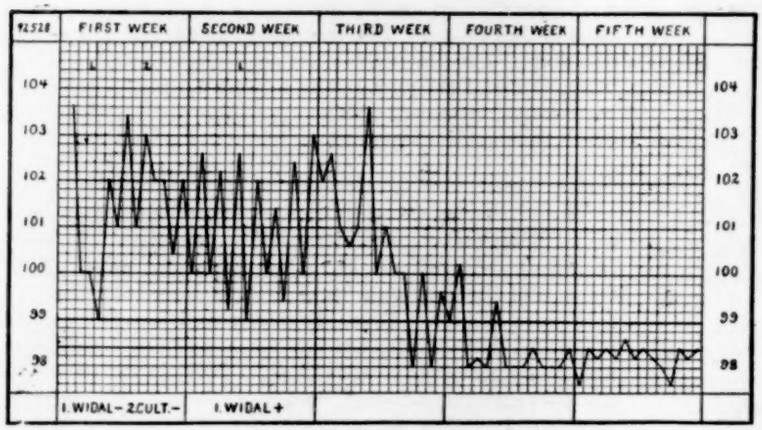

Chart 1.—Primary attack of typhoid fever resulting in recovery

The leukocyte count was performed 198 times in uncomplicated cases, giving an average of 6,750. In no uncomplicated case was there a count of over 11,000, but absence of leukocytosis did not exclude complications. This forcibly demonstrates the value of the leukocyte count in detecting the complications in the course of typhoid infection. Differential white blood-counts were not undertaken.

The exact value of the Widal test in the diagnosis of typhoid fever seems difficult to estimate. A positive reaction preceded by a negative one during the course of a fever suspiciously like typhoid is of undoubted value. To illustrate this point, the last case of our series may be cited:

The patient was admitted in what later proved to be the terminal part of the disease. His infection had evidently been a rudimentary one. Slight fever, a coated tongue and a low leukocyte count were the only physical findings. Typhoid fever in the decline was suspected and a Widal test made. The result was negative. A repeated test was also negative several days later. The fever, ending by lysis, seemed to confirm the clinical diagnosis and a third Widal was made during convalescence. This time the result was positive. A proof of the correctness of the Widal in this case was obtained four days later when a relapse occurred during which the blood-culture was positive for *B. typhosus*.

On the other hand, it is a well-known fact that the Widal test in even a single case may vary from day to day, being positive one day and negative the next. It is therefore not surprising to us that 103 tests on ninety-eight cases in the second and third week, though positive in 89 per cent. of the total cases, are difficult to analyze.

The absence of history of previous infections and the constantly increasing number of antityphoid vaccinations invalidate this test in another group of cases. Another source of error is the unfortunate fact that in unselected cases not suffering with either typhoid fever or tuberculosis, over 15 per cent. gave a positive test. Whether or not this percentage of our negroes have had typhoid fever in their native islands we have no means of ascertaining. Finally, the Widal test may be positive in tuberculous patients, for it is a fact that not a small percentage of our disseminating and miliary tuberculosis patients give a positive test. To confirm this clinical experience, the Widal test was performed on thirty-two patients with positive tuberculosis in the advanced stage. Of these thirty-two tests, seven were positive, four gave partial agglutination, and twenty-one gave negative results.

The following technic was employed in all tests: One drop of the patient's serum was diluted twenty-five times with normal saline solution. One loopful of this diluted serum was thoroughly mixed with one loopful of a saline emulsion of a twenty-four-hour agar slant growth of *B. typhosus*, this giving a 1:50 dilution of the serum. This mixture was prepared in the form of hanging drop and observed at half-hour intervals, two hours being the maximum period allowed for agglutination to occur.

The blood-culture is the only absolutely positive diagnosis of the disease. It was found to be positive in 80 per cent. of our cases cultured during the first week, 53 per cent. in the second week, and 34 per cent. in the third week; too few were cultured in the fourth week to warrant conclusions. Out of a total of 126 positive cases, *B. typhosus* was recovered 106 times; *B. paratyphosus* A 10 times; and *B. paratyphosus* B 10 times. Seven each of the two latter were recovered in 1909, a year which showed 50 per cent. paratyphoid infection during

a small epidemic. Generally speaking, the earlier the culture is taken the higher the percentage of positive results. (Table 1 and Chart 3).

TABLE 1.—BLOOD-CULTURES

Day of Disease	Number Cultured	Positive	Negative
1	0	0	0
2	0	0	0
3	2	2	0
4	4	3	1
5	5	3	2
6	12	10	2
7	21	17	4
8	16	12	4
9	30	17	13
10	18	9	9
11	22	9	13
12	19	11	8
13	12	7	5
14	9	2	7
15	4	2	2
16	9	3	6
17	3	1	2
18	5	1	4
19	4	2	2
20	2	1	1
21	2	0	2

The blood-culture has been positive in all our fatal cases with one exception. In this case *B. paratyphosus* A, and not *B. typhosus,* was recovered from the spleen at necropsy, though the ante-mortem culture remained sterile. It occasionally happens that the first blood-culture remains sterile, while a subsequent one proves positive when culturing the usual amount of from 5 to 10 c.c. of venous blood. The culture was positive in twelve out of thirteen cases examined during relapse. Three of these positive results were *paratyphosus* B, and two *paratyphosus* A, the remainder being *B. typhosus.*

The technic employed in recovering and identifying *B. typhosus* from the blood-stream was as follows: About 12 c.c. of blood were taken under aseptic precautions from a vein at the bend of the elbow, 5 c.c. being placed immediately in 50 c.c. of bile glycerin peptone medium, 5 c.c. in broth containing 0.6 per cent. ammonium oxalate to prevent clotting, 2 c.c. in 50 c.c. of litmus milk and several drops on agar slants. The latter two mediums were not used for recovering the typhoid bacillus, but for those organisms which will not grow in the bile or beef medium. Bile is undoubtedly the best medium for the recovery of the typhoid bacillus. These mediums were incubated at 37 C. from eighteen to twenty-four hours, at which time six agar plates were poured, three of the plates being inoculated with various dilutions from the bile medium and three from the broth. If at the end of twenty-four hours' incubation typical dew-like colonies were present on these plates, the organism was considered to be *B. typhosus,* but the work of identification was continued. (Colonies direct from the plates were occasionally tested with immune serum.) Several tubes of broth were inoculated each from a different colony and these incubated over night to obtain an abundant growth of the organisms. Each tube was then used to inoculate an agar slant, litmus milk, broth, potato, Dunham's mediums and the following semisolid mediums: dextrose, lactose, dulcite, saccharose, galactose, mannite and dextrin. A gelatin stab was also inoculated if the organism was not typical in every respect. A reading of these mediums was made every day for ten days, at which time the peptone mediums were tested for indol, agglutination tests were performed with immune rabbit serum and the agar slant sealed and filed away for further reference if necessary.

The typhoid organisms recovered from the cases cited in this paper have shown identical cultural characteristics in all but a few instances, namely: No gas formation in any mediums, acid formation in glucose, galactose and mannite semisolid, also in maltose when used; all this taking place in from twenty-four to forty-eight hours. There was turbidity and sediment in beef tea, a slight lilac tinge to the litmus milk, no indol in the peptone medium, an invisible growth or faint white streak on potato and the usual growth on agar slant. The bacillus has been easily agglutinated by immune rabbit serum and in dilution of 1:200.

The paratyphoid bacilli, as a rule, have fermented glucose, dulcite, galactose, mannite and dextrin with the formation of both acid and gas. The formation of gas in the galactose and mannite semisolid mediums has not been constant; it sometimes occurring in one, sometimes in the other, sometimes in both and sometimes in neither. Also, fermentation with a slight production of gas, a bubble or two, has been observed in lactose semisolid. Very rarely has this occurred in saccharose medium.

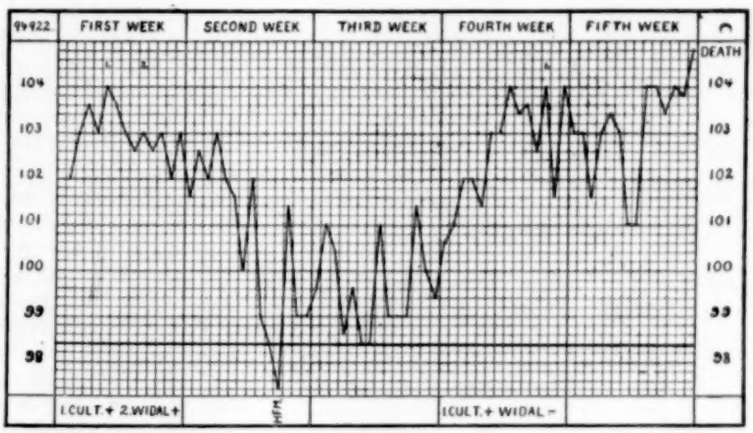

Chart 2.—Second attack of typhoid fever in same patient, several weeks later, followed by relapse and death.

Several colonies from the same plate may show all these differences. Cultures showing these variations were also taken and identified during the epidemic in the spring of 1909 by Dr. S. T. Darling.

In the A type the milk remained slightly acid, while in the B type it became strongly alkaline in most instances about the fifth or sixth day. The identification of each organism was completed by testing it with the respective immune serums in high dilution.

In all probability in none of the straight typhoid cases has there been a simultaneous infection with paratyphoid organisms, as glucose semisolid medium has been inoculated directly from the bile medium in a large number of cases, and in none has gas production been observed.

Early in 1909 Lieut.-Col. Charles F. Mason, superintendent of the hospital, issued orders to have stool and urine specimens cultured for *B. typhosus* during convalescence. In the submitted series 399 stools and 401 urine specimens were cultured. Tables 2 and 3 show the results obtained.

TABLE 2.—TOTAL OF THREE HUNDRED AND NINETY-NINE STOOL CULTURES

B. typhosus present in	16
B. paratyphosus A present in	1
B. paratyphosus B present in	0

TABLE 3.—TOTAL OF FOUR HUNDRED AND ONE URINE CULTURES

B. typhosus present in	13
B. paratyphosus, A present in	3
B. paratyphosus B present in	0

In twenty-eight cases, or 14 per cent., *B. typhosus* or *paratyphosus* were recovered from the stool or urine or both. In these twenty-eight it occurred but once in twenty-five cases, twice in two and repeatedly in one.

DIFFERENTIAL DIAGNOSIS

There are several infections which in many ways so closely simulate typhoid fever that a differential diagnosis is at times difficult. Of these, three deserve special attention, namely, malaria, disseminated or miliary tuberculosis and a class of cases which we have always been forced to designate "acute infections of undetermined origin."

Malaria, severe enough to be mistaken for the average typhoid fever in the fastigium, can almost invariably be diagnosed by the examination of a Romanowsky stained blood-film (Hasting's stain has been the stain of election in the Canal Zone), provided that quinin has not been previously administered. Even in cases in which the urgency of symptoms seem to indicate immediate quinin administration, there is no excuse for neglecting to make a blood-film first, for future examination. Should this simple precaution not have been observed, it may become necessary to apply the therapeutic test of from four to six days' heavy quinin administration in the face of negative blood examinations. The dosage of quinin necessary to combat a pernicious malarial infection cannot but be detrimental to a patient who is actually suffering with typhoid fever and not malaria. The practice of early blood examination would in practically all cases differentiate severe untreated malaria from typhoid fever.

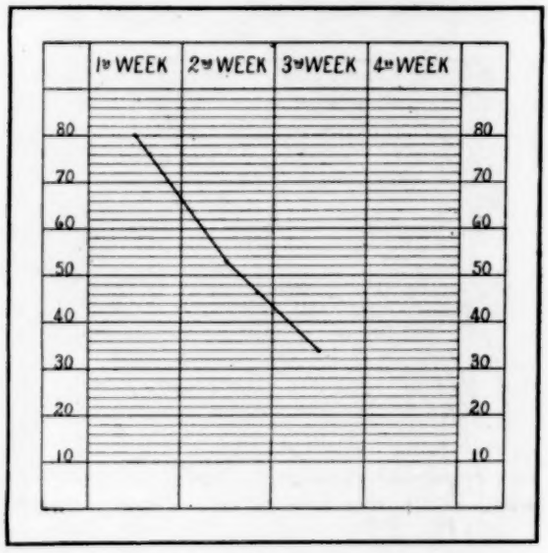

Chart 3.—Percentage line illustrating the rapid decline of positive blood-cultures during the first three weeks of typhoid fever.

Disseminated or miliary tuberculosis, in which focal physical signs are wanting, has been our greatest source of error in differential diagnosis. In not a few cases the tuberculous patient had to be treated as a typhoid-fever patient until the duration of the fever excluded typhoid. The Widal test is deceptive, and was positive in 22 per cent. of these cases as previously mentioned. A reliable clinical or laboratory finding early in the disease is much needed in these cases. Physically one of our best differential signs, when present early, has been pleural or pericardial friction. This is as common in tuberculosis as it is rare in uncomplicated typhoid fever. Early in the disease, a rapid pulse and lingual cyanosis are in favor of tuberculosis. The value of other signs in differential diagnosis so often given seems to have been over estimated so far as our negro patients are concerned. Later signs in an undifferentiated infection, as for instance intestinal hemorrhage and perforation peritonitis, are, of course, strongly in favor of typhoid fever.

"Acute infections of undetermined origin" are occasionally encountered. They commonly prove rapidly fatal. There is usually leukopenia, as in typhoid. Antemortem blood-cultures are sterile. Clinically they cannot be differentiated from grave *B. typhosus* infections. The pathologic findings exclude typhoid, show evidence of an acute infection, but shed no light on the etiology of the disease. All post-mortem cultures remain sterile.

TREATMENT

The treatment employed in our typhoid-fever cases has been very simple and of the expectant type. The patient is usually fed exclusively on milk and broth during the fever stage. In occasional cases the patients have had oatmeal jelly, custards and orange juice added. The existing rule barring foodstuffs brought by visiting friends and relatives cannot always be strictly enforced. Hydrotherapathically, sponge baths of tap water (of about 75 F.) are given every four hours while the temperature remains over 102.5 F. Diarrhea being seldom present called for no special treatment. For constipation soap-suds enemas containing 30 minims to 1 dram of spirits of turpentine are used. During convalescence these enemas are replaced by oleum ricini in 1-ounce doses. Throughout the entire course of the disease and during convalescence phenyl salicylate (salol) in 10-grain doses is given three times daily. If stimulants are called for, strychnin and spiritus frumenti are usually preferred. During convalescence the patients are gradually returned to full diet on about the tenth day of normal temperature. All recognized antiseptic measures are of course carried out and the patient is not discharged from quarantine until two consecutive stool and urine specimens at an interval of five days are negative for *B. typhosus*. These specimens are not examined until temperature has remained normal.

COMPLICATIONS AND THEIR TREATMENT

The following have been the complications of typhoid fever per se, in order of their frequency: phlebitis and thrombosis, 11; intestinal hemorrhage, 5; parotitis, 4; perforation peritonitis, 3; cholecystitis and periostitis, each 2; myositis and laryngitis, each 1.

The treatment of phlebitis and thrombosis was elevation of the affected limb and local application of ice. Intestinal hemorrhage was treated with morphin and ice-packs. Cholecystitis and parotitis were likewise treated with local applications of cold. One of the three cases of perforation peritonitis was recognized early enough for laparotomy and repair. All three cases proved fatal. The remaining patients who had complications, recovered spontaneously.

Complicating diseases present in their order of frequency were: estivo-autumnal malaria, 21; tertian malaria, 6; lobar pneumonia, 5; entamebic dysentery, 2; acute follicular tonsillitis, plastic pleurisy, rubeola, myringitis, gonorrheal arthritis, decubitus and sciatica, each 1. These cases were all treated in the recognized

manner, irrespective of the typhoid infection. The two entamebic dysentery cases were treated by the bismuth method without any deleterious effect on the typhoid course.

MORTALITY

In the series of 195 cases there were seventeen deaths, a mortality of 8.7 per cent. The necropsies were performed by Dr. H. C. Clark. Complications found at necropsy in addition to the usual typhoid lesions were perforation peritonitis three times, lobar pneumonia and venous thrombosis each once.

CONCLUSIONS

Typhoid fever in the Canal Zone tropical native pursues the same variable course as in the temperate zones.

The only absolute diagnosis of typhoid fever is a positive blood-culture. The earlier in the disease that the blood is cultured, the greater the chance of making a positive diagnosis.

The Widal test has been positive in 89 per cent. during the second and third weeks. At the same time the test has also been positive in 22 per cent. of our advanced tuberculosis cases and in 15 per cent. in non-tuberculous cases of various diseases. The value of the test seems to depend entirely on its repeated application in selected cases.

The white blood-count is of great value in the diagnosis of typhoid fever. During the fever a change from leukopenia or normal to leukocytosis invariably points to complication.

Splenic enlargement in the tropics is of practically no value in the diagnosis of typhoid fever, unless previous or coexisting malarial infection can be definitely excluded.

In the differential diagnosis of typhoid fever, disseminated or acute miliary tuberculosis and "acute infections of undetermined origin" present the greatest difficulty and should always be kept in mind in the presence of leukopenia and repeatedly negative blood-cultures.

The most frequent complication of typhoid fever in the Canal Zone is malaria.

To prevent the discharge of typhoid-carriers, routine stool and urine examinations of convalescents are necessary.

AN IMPROVED CLINICAL AND A MICROCHEMICAL TEST FOR BLOOD*

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Small particles which look like blood or blood-tinged mucus are sometimes found in microscopic examinations of feces and similar substances, and in medicolegal examinations microscopically identified particles and dust like scrapings of minute volume require microchemical methods for fuller proof of hemic origin.

The microchemical method to be described depends on an improved benzidin test for occult blood in feces and material of this kind, and this test will therefore be described first.

Five c.c. of chemically pure glacial acetic acid is placed in each of two new or very clean 10 or 15 c.c. test-tubes and to each is added with a glass or horn spatula a knife-pointful of benzidin and an equal amount of barium dioxid. These should partly dissolve with mild effervescence, leaving a brown-straw or slightly greenish-straw supernatant fluid. If a green color develops the acid is likely contaminated with iron or the utensils are not clean, and the test should not proceed. To one of the tubes is added not to exceed 1 c.c. of the solution or extract, or a decoction of the solid material to be tested, previously boiled if ferments could be present, and at once, or within a few seconds, a deep blue or green color develops. The control tube must have held its color with no change to green or blue.

This test is so extremely delicate that it must be used with caution. The barium dioxid liberates hydrogen peroxid in the presence of the glacial acetic acid, giving more available dioxid than can be obtained by adding the official solution. Furthermore, since it does not dilute the acetic acid, the reaction is greatly sharpened and it is stable and always active, while an opened vial of H_2O_2, U. S. P., deteriorates.

For the microchemical test the dry material is crushed on a slide beneath a cover-slip and examined microscopically and identified if possible. A few drops of the clear portion of the reagent described is then run under the cover-slip and macroscopic blue halos quickly surround the blood-particles, or can be seen with a low power and low illumination. With moist preparations the reagent can be run under, using bibulous paper on the farther side of the cover-slip. Dry preparations may be first moistened with distilled water, salt solution, etc., as required. All utensils and reagents must be clean and pure, avoiding contamination with iron or the use of iron spatulas. Emphasis must be placed on the preliminary microscopic examination and the careful watching of those particles which have been microscopically identified as the reagent reaches them. For example, a speck of dried blood can be differentiated from a speck of iron oxid with the low power, but each will have a halo with the reagent.

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A UNIQUE CASE OF VICARIOUS MENSTRUATION

D. H. GALLOWAY, M.D., ROSWELL, N. MEX.

About six years ago I was called to see a young woman who was suffering from an ulcer on each leg. Each ulcer was larger than a man's hand, not deep but excessively painful, and bled profusely. The edges were irregular in outline, not much inflamed and not raised. The legs were not swollen. For four years, despite various forms of treatment, these ulcers persisted in varying size, becoming especially large at the menstrual periods. I first tried irrigation of the ulcers with warm physiologic salt solution, several times daily, in the intervals covering them with a wet dressing of boric acid. The boric acid caused so much pain that a wet dressing of salt solution was substituted. In five or six days the ulcers were the size of a silver dollar, and ten days later one was closed, with a smooth, apparently thin skin, unlike an ordinary scar. One week afterward I found the patient suffering great pain, and the ulcers again rapidly spreading. In three days one leg was completely, the other almost, girdled. They were so painful that the patient could obtain little rest or sleep for three or four days. After several months I recommended a careful examination under an anesthetic at a hospital. About one week before the expected menstrual period, when the ulcers were most active, the examination was made.

The uterus was very small, in fact, almost infantile. The os was dilated and a cavity 1 inch deep was found. A curet passed rather vigorously over the interior produced nothing, although bleeding was rather free. I swabbed the cavity with tincture of iodin and packed the os tightly with gauze, which

was removed after twenty-four hours. The menstrual flow had not previously amounted to more than a teaspoonful. At the time of the next period the ulcers enlarged somewhat, while the menstrual flow was largely increased. The ulcers healed in one week and so remained during the next period, although pain in the legs was complained of and the opening of the ulcers seemed imminent. They remained closed through the next month. The next menstruation was also more profuse, and the ulcers, while open, were very small.

This trouble had existed during five years, when the patient married. I predicted that pregnancy would result in a cure. She became pregnant, had slight trouble during pregnancy, gave birth to a healthy child, and since has been entirely normal.

The conclusion is unavoidable that this was a case of vicarious menstruation, though I have never read of a similar case in medical literature. In all other reported cases the vicarious flow has been through some natural orifice, the rectum, the nose, the mouth, the eyes or the nipples. I believe that this case is unique.

AN UNUSUAL ANOMALY OF THE LEFT PULMONARY VEIN

James Patterson, M.D., Chicago

Notable anastomoses between pulmonary and systemic venous systems are so rare as to deserve mention. In this subject, dissected in the anatomic laboratory of the University of Chicago, a large vein draining the upper two-thirds of the left lung coursed upward and emptied into the vena

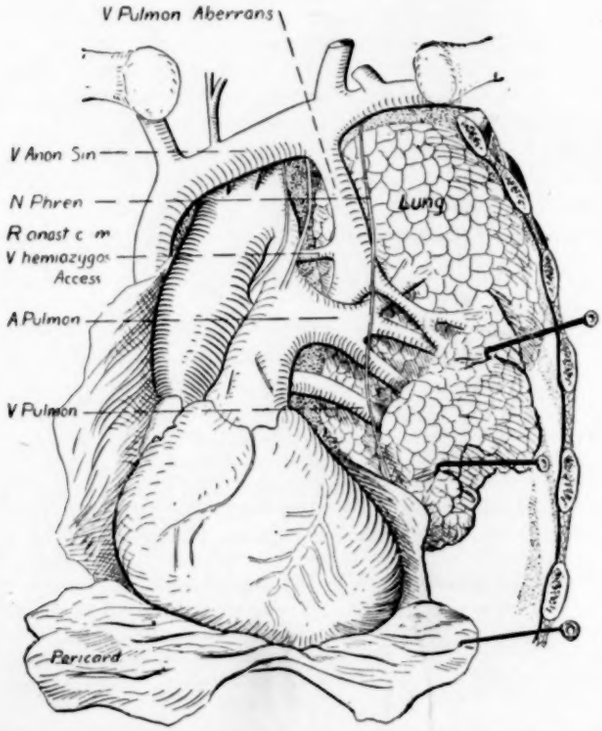

Fig. 1.—Aberrant pulmonary vein emptying into the left innominate vein.

anonyma sinistra about 1.5 cm. from its beginning at the junction of the vena jugularis interna with the vena subclavia. About 5 cm. from its mouth this vena pulmonalis aberrans gave off a branch which ran posteriorly over the median surface of the lung and emptied into the vena hemiazygos accessoria. On dissecting out the radicals of this unusual vessel it was found that all the blood returning from the upper lobe and the upper half of the lower lobe of the left lung was short-circuited. A relatively small vein from the lower part of the lung entered the left atrium in the normal way.

A number of uncommon connections have been described before. Piersol[1] and Quain[2] in their texts mention that a connection similar to the one before noted has occurred and they also say that the upper pulmonary vein on the right side has been seen opening into the vena azygos major. Looten and Ruyssen[3] depict a vein from the upper third of the left lung emptying into the left innominate. They cite Mechel and Gegenbaur, and Grüber as describing two cases

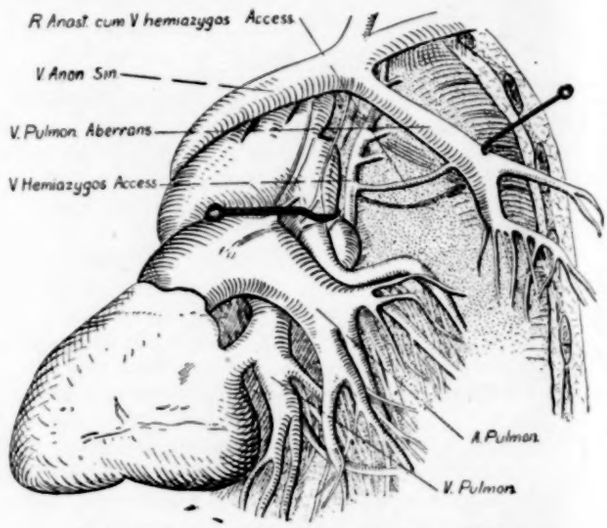

Fig. 2.—Dissection illustrating smaller branches.

of the right superior pulmonary vein going into the superior vena cava; Weber as finding a connection between the left pulmonary vein and the left subclavian, and Bachmann as showing a left pulmonary vein emptying into the left innominate. The azygos has also been found an unusual tributary to the innominate. So far as I have been able to find then, there are only two cases on record of the aberrant pulmonary vein connecting with the innominate, that of Bachmann and that noted by Looten and Ruyssen, and in these cases there was not found the auxiliary anastomosis with the hemiazygos accessoria which is shown in the accompanying illustrations. The rarity of the anomaly is the reason for putting it on record.

I am indebted to Dr. J. H. Mitchell and Mr. A. B. Streedain for the drawings.

7 West Madison Street.

RUPTURE OF THE SIGMOID BY AN AIR-BLAST OF 120 POUNDS PRESSURE

Harlan Shoemaker, A.B., M.D., Shelby, N. C.
Surgeon of the Shelby Hospital

On May 8, 1913, a mill-boy sneaked behind the patient and played an air-hose on the rectum as he was leaning over his "doffer's box." The injured boy dropped at once and lost consciousness immediately. The air-blast was 120 pounds pressure to the square inch. Dr. W. H. Hauser of Cherryville called me into consultation the next day. The patient was moved to the hospital twenty hours after the accident. At the consultation and on admission his abdomen was distended and tender, with some rigidity of the muscles. No blood was passed by the rectum. He vomited food and nourishment. A rapid hard pulse (120) of small volume and a temperature of 100 degrees was noted.

1. Piersol: Human Anatomy, Vol. i, pp. 854-858, 859.
2. Quain: Anatomy, Vol. ii, Part 2, p. 379.
3. Looten, J., and Ruyssen, C.: Bibliographie Anat., 1910, xx, 219.

Through a left rectus incision under chloroform, the abdominal cavity was found full of blood with a slight odor. The upper portion of the rectum and all of a very redundant sigmoid were split along the free margin of the intestine. Above the sigmoid and in the lower portion of the descending colon two transverse tears crossed the bowel. The effects of the air-blast, by the stretching and checking of the peritoneum as well as by the congestion of the blood-vessels, could be seen as far as the cecum. The small intestines were collapsed and were not congested. The tear in the intestine was not completely through it. The serous and muscular coats were torn through, but the mucous coat was stretched to the thinness of tissue-paper and filled a 10-inch gap.

The mucosa was folded in by interrupted stitches of sea-island cotton placed in the muscular and serous layers of the bowel. A double row of stitches was used throughout. The intestine was opened well above the traumatic area of the bowel in the descending colon. A No. 24 French catheter was passed out of the rectum and fastened in the bowel by one stitch of chromic catgut. The bowel was closed by interrupted stitches of sea-island cotton and a drain was placed in the pelvis. The patient made an uneventful recovery.

In the postoperative treatment the head of the bed was slightly elevated and gas was expelled through the tube in thirty-six hours, when water by the mouth was begun and retained without distention. The pelvic drain was removed in one week and the rectal tube was expelled at the same time. The patient was nourished on liquids for fourteen days and at the end of that time the bowel movements became normal with the aid of an ounce of glycerin injected high up in the sigmoid through a small catheter. No medicine, opiates or purgatives were used by mouth or by hypodermic injection. By palpation the condition of the sigmoid could be judged at all times, and the tube in the intestine drained off the gas and some fecal matter continuously. I made no attempt to rush fecal matter over a very much sewn intestine; consequently, the stretched mucosa of the sigmoid did not slough.

A CASE OF AMEBIC DYSENTERY TREATED WITH EMETIN HYDROCHLORID

R. E. Cloud, M.D., Ensley, Ala.

History.—S. J. G., aged 34, white, male, was born in Kentucky and moved at the age of 17 to Decatur, Ala., where he lived about ten years. From Decatur he came to Birmingham (Ensley), which has been his residence continuously for the past seven years. Eight years ago he spent a month in Houston, Tex., which single trip constitutes the extent of his travels.

The present trouble began three and a half or four years ago with frequent movements of bowels (fifteen or twenty stools in twenty-four hours), straining, pain in hypogastrium and over sacrum and tenderness in epigastrium. Movements consisted mostly of blood and mucus. Attacks of this kind, more or less severe, recurred three or four times a year, usually lasting a month or more. Stools would number two or three a day during intervals between severe attacks, never being entirely free from mucus and blood and practically all accompanied by tenesmus.

At the time that the patient consulted me, September 15, he was suffering with a moderately severe attack which had developed four or five days previous and just reached the point where he had to discontinue work.

Physical Examination.—Height 5 feet 8½ inches, weight 140 pounds (formerly his weight averaged about 160). No evidence found of pathologic condition in thorax. Tenderness in epigastrium and hypogastrium. Stool (passed in a vessel in my office), macroscopically, seemed to consist of only blood and mucus; microscopically, motile amebas were found in the first field.

Treatment and Results.—September 15 the patient had six or eight movements from early morning to noon. Milk diet was prescribed and ½ grain emetin hydrochlorid given hypodermatically.

September 16. Four stools since the day before; a little blood in the first two, mucus in all. Emetin 1 grain.

September 17. Three stools in last twenty-four hours but no red blood in any. General appearance yellow with some mucus. Emetin 1 grain.

September 18. Two well-formed yellow movements, a little mucus, no blood. No emetin given; supply exhausted.

September 19. One stool about 11 a. m., yellow and perfectly normal in appearance. Patient says that this is the first morning that he has not been forced to go to the toilet immediately on rising in probably a year. No pain or straining and only slight tenderness in epigastrium. A final dose of 1½ grains emetin was given, although the case, clinically, seemed cured.

September 24. Returned to work on Monday, September 22; all symptoms absent since the 18th and only one movement per day since that date. Feels "remarkably" well. Stool perfectly normal in appearance, well formed, no suggestion of blood or mucus.

All treatments were given in my office. There was not the least nausea or, in fact, any noticeable constitutional effect following injections although patient had to go home on the car (about a mile) after each dose.

After the second day soft diet was allowed and on the fifth patient was told to eat whatever he desired.

1903½ Avenue E.

A SIMPLE AND PRACTICAL METHOD FOR THE PREPARATION OF PURE BUTTERMILK

Sverre Oftedal, M.D., Climax, Minn.

The rôle of buttermilk, particularly in the artificial feeding of infants and in the treatment of gastro-intestinal disorders of the first two years of life, has made its use a matter of necessity among rich and poor alike. A practical method for its preparation seems, therefore, to be a matter of considerable importance.

This idea was suggested through a study of the recent work of Clock and others along the lines of the lactic acid bacillus principle of treatment, and its use is largely based on the administration of the culture of the *Bacillus lactis bulgaricus*, Type A (Grigoroff), although its preparation is not necessarily dependent on this form of lactic acid bacillus culture preparation.

There are two methods for the preparation of buttermilk according to this principle, the choice of which would depend on whether the physician or trained nurse is able to carry out the work in person, or must leave it to the mother or some one else in charge who has no knowledge of bacteriologic or dietetic principles:

1. In carrying out this method I have obtained the kind assistance and cooperation of the buttermaker in charge of a local creamery. It is a well-known fact that the buttermaker uses a pure culture of lactic acid bacillus in the process of "ripening" the cream. This culture is kept fresh by frequent renewal or "propagation." The mother or nurse is instructed to obtain a small amount of this culture in a bottle or hermetically sealed jar, which has previously been placed in boiling water for a few minutes and then corked or sealed. This must, of course, be kept in a cool place at the home. A pint of whole or skimmed milk, as the case may indicate, is placed in a boiler, preferably a double boiler, brought to a boiling point over a slow fire and then cooled down to room temperature without the lid of the boiler being removed. A teaspoonful of the culture (the spoon which is used having been held in boiling water for a minute or two) is then put into the milk and the whole allowed to stand at room temperature for eight hours, after which it is cooled down and kept ready for use. This method may be carried out in any household which has access to a creamery. It has been my experience that the buttermaker is very willing to cooperate with the physician in the work, and some remuneration may easily be arranged for.

2. This method requires a little more scientific detail, and is best carried out by the physician or trained nurse in person. Whole milk is cooled down to about 50 F. immediately after milking by the vessel being immersed in ice-water. It is then pasteurized at 180 F. for thirty minutes. After cooling down to 80 F. implantation is carried out by the use of the tablets of *B. lactis bulgaricus*, Type A (Grigoroff), in the proportion of six tablets to a half pint of milk. It is kept at this temperature for eight hours, or until the milk is coagulated. If used before coagulation has taken place it will have a bitter, disagreeable taste. After coagulation, however, it assumes a very agreeable odor and taste. The culture, after being thus prepared, may be further propagated, according to the first method, by simple transplantation every twenty-four hours, and an indefinite amount of buttermilk be thus prepared. A culture may be safely carried along for two weeks, when a fresh culture should be prepared.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ACNE VACCINE.—(See N. N. R., 1913, p. 221.)
The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Acne-Bacterin Polyvalent.—Marketed in four syringes containing respectively 25 million, 50 million, 100 million and 200 million killed Bacillus Acne.

BACILLUS COLI VACCINE.—(See N. N. R., 1913, p. 221.)
The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Coli-Bacterin Polyvalent.—Marketed in four syringes containing respectively 50 million, 100 million, 200 million and 400 million killed Bacillus Coli Communis.

FRIEDLAENDER VACCINE.—(See N. N. R., 1913, p. 222.)
The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Friedlander Bacterin Polyvalent.—Marketed in four syringes containing respectively 50 million, 100 million, 200 million and 400 million killed Friedlander bacilli.

GONOCOCCUS VACCINE.—(See N. N. R., 1913, p. 223.)
The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Gonococcus-Bacterin Polyvalent.—Marketed in four syringes containing respectively 50 million, 100 million, 200 million and 400 million killed Gonococci.

PNEUMOCOCCUS VACCINE.—(See N. N. R., 1913, p. 224.)
The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Pneumo-Bacterin Polyvalent.—Marketed in four syringes containing respectively 50 million, 100 million, 200 million and 400 million killed Pneumococci.

MIXED VACCINES.—(See N. N. R., 1913, p. 224.)
The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Staphylo-Acne-Bacterin Polyvalent.—Marketed in four syringes. Syringe 1 contains 250 million mixed Staphylococci and 25 million Acne Bacilli. Total 275 million killed bacteria. Syringe 2 contains 500 million mixed Staphylococci and 50 million Acne Bacilli. Total 550 million killed bacteria. Syringe 3 contains 1,000 million mixed Staphylococci, and 100 million Acne Bacilli. Total 1,100 million killed bacteria. Syringe 4 contains 2,000 million mixed Staphylococci and 200 million Acne Bacilli. Total 2,200 million killed bacteria.

STAPHYLOCOCCUS VACCINES.—(See N. N. R., 1913, p. 225.)
The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Staphylo-Albus-Bacterin Polyvalent.—Marketed in four syringes, containing respectively 200 million, 400 million, 800 million and 1,000 million killed Staphylococcus Albus.

Staphylo-Aureus-Bacterin Polyvalent.—Marketed in four syringes containing respectively 200 million, 400 million, 800 million and 1,000 million killed Staphylococcus Aureus.

Staphylo-Bacterins (Human) Albus-Aureus-Citreus.—Marketed in four syringes containing respectively 200 million, 400 million, 800 million and 1,000 million killed bacteria.

STREPTOCOCCUS VACCINE.—(See N. N. R., 1913, p. 226.)
The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Strepto-Bacterin (Scarlatina Bacterin) Polyvalent.—Marketed in four syringes containing respectively 50 million, 100 million, 200 million and 400 million killed streptococci from scarlet fever cases.

Antistreptococcic Vaccine (Scarlatina Prophylactic).—Marketed in packages of three syringes containing respectively 250 million, 500 million and 1,000 million killed streptococci from scarlet fever cases.

Strepto-Bacterin (Human) Polyvalent.—Marketed in four syringes containing respectively 50 million, 100 million, 200 million and 400 million killed streptococci.

TYPHOID VACCINE.—(See N. N. R., 1913, p. 227.)
The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Typho-Bacterin Polyvalent.—Marketed in four syringes containing respectively 100 million, 200 million, 400 million and 800 million killed Typhoid Bacilli.

Typhoid Prophylactic.—Marketed in packages containing three syringes, containing respectively 500 million, 1,000 million and 1,000 million killed bacteria.

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Arheol Capsules.—Each capsule contains Arheol 0.2 Gm. (3 grains).

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Therapeutics

PUERPERAL INFECTION

This discussion does not aim to be dogmatic, but suggestive. Though septic infection after parturition occurs much less often than even a few years ago, it is still sufficiently frequent to necessitate resort to every possible method of prevention and to the thorough consideration of effective but non-meddlesome treatment.

This infection occurs most frequently in one of two general forms. One is a typical blood-poisoning or sapremia, which is caused by the absorption of toxins or decomposition products of substances that are undergoing putrefactive or other chemical changes in the genital tract. Of course the most frequent substances causing such poisoning are retained fragments of the placenta or membranes, or, if there is any obstruction to the exit of the normal lochia, there may be absorption from this.

Such poisoning may be termed an auto-intoxication or autotoxemia. This poisoning may cause more or less rise of temperature, but it may not be high, and although an increased temperature in the first few days after parturition may be due to a bowel infection, to the absorption of bowel toxins, to some disturbance of the mammary glands, to some bladder or kidney disturbance or, of course, to some acute infection to which the patient may have been exposed, still, generally, the cause of such fever will be found to be in the genito-urinary tract. Slight injuries of the uterus, vagina or perineum during parturition may allow absorption of and poisoning by discharges that would otherwise be innocuous.

The other more serious cause of puerperal infection or puerperal fever is the absorption and circulation of pathogenic bacteria. Of these may be mentioned some varieties of streptococcus, pneumococcus, staphylococcus, gonococcus, and perhaps not infrequently the colon bacillus. Localized infections and more or less general disturbance from the last three of these pathogenic germs may not be serious infections as far as the immediate consequences are concerned and perhaps could hardly be called septic fever. Infections, however, from some form of streptococcus and occasionally from the pneumococcus are always serious; the patient is septic and is suffering from dangerous septicemia. A puerperal streptococcic infection quite commonly, though not always, will show a bacteriemia and may have as a complication endocarditis, even the malignant type, with perhaps associated local lesions such as pneumonias, pleurisy and kidney infection, a pyelitis or a localized septic process in the kidney substance. Such a general infection is usually associated with more or less pelvic inflammation and pelvic tenderness, but is commonly without any pelvic abscess or purulent discharge.

It can easily be understood how a slight injury or even a denuded surface of mucous membrane in the genital tract, consequent on parturition, with its surrounding vascular supply normally increased and lymphatic supply perhaps increased owing to the needs of the previous pregnancy, gives such a dangerous possibility and almost a probability of the absorption of poisons and germs. A certain amount of abnormal absorption generally occurs, but is combatted by the normal woman. Such small absorptions are probably the cause of the frequent slight rises of temperature which last for a few hours or a day and then disappear, representing the normal neutralization of such toxins or the normal rendering inert of such germs. In other words, the resistance of the patient has proved entirely sufficient to combat the infection.

If we accept the wound or abrasion theory of most puerperal infections the poison is really external to the body and is absorbed, unless there is some previously localized infection, such as that from a gonococcus. Consequently, the prevention of infection before, during and subsequent to a parturition, proper cleanliness and care of the patient without meddlesome and obstructive treatment or methods of treatment, and without removing Nature's own protective secretions, are the objects at which to aim.

PREVENTION OF INFECTION

Most of the preventive measures are too well understood to require more than enumeration. The selection and preparation of the room, the preparation of the patient and of himself are well-understood duties of the attending physician. The nurse also well understands the preparation of herself. A few details, however, should be emphasized. The nose of the patient should be gently sprayed and cleansed with an alkaline or mild antiseptic solution. The mouth and throat should be washed with some mild antiseptic mouth-wash, and the teeth thoroughly cleansed. The nurse should not give the patient a vaginal douche unless ordered to do so by the physician. The nurse should be free from any purulent discharge, especially from the nose, throat or even ears. She cannot be too careful in observing the greatest possible cleanliness in the care of the vulva and the vaginal discharges, with the use of such antiseptic solutions and gauze as the physician directs. If the patient must be catheterized, too great care cannot be taken to prevent infection of the bladder.

Although a physician may take every means possible for personal disinfection and wear a sterilized gown and rubber gloves, it seems, except in isolated instances, unjustifiable for him to accept a case of obstetrics while he is in attendance in a case in which there is contagion, or immediately subsequent to handling such a case, whether it be of scarlet fever, erysipelas, measles or diphtheria. After having cared for a patient with puerperal fever, he should not accept another case of obstetrics for some time and he should not attend a case of obstetrics while he is caring for any septic patient.

The patient ordinarily should not be given a vaginal douche just before parturition. Very frequently one vaginal examination by the physician, to determine the exact position of the child and the condition of the os uteri, is all that is needed. This examination should be made after sterilization of the hands and with the use of rubber gloves. When there is any delay in a normal labor, any apparent malposition, or other complicating disturbance, several vaginal examinations must be made. Of course in all operative interference manipulations are more or less necessary, and although the instruments may have been properly sterilized, injuries to the parts are very likely to occur and the danger of future infection is much greater.

If there is any purulent catarrh of the vagina, especially if gonorrhea is present, cleansing and perhaps mildly antiseptic douches should generally be used. On the other hand, with a normal vagina it seems unwise to remove the secretions which facilitate the expulsion of the child and at the same time protect the mucous membrane.

There is a difference of opinion as to the proper management when portions of membrane or of the placenta are found by examination of the expelled after-birth to have been retained. Some obstetricians would leave these retained substances to be loosened and expelled by natural processes, when ordinary gentle manipulation of the uterus does not expel them. Others believe that the sterilized, rubber-gloved hand should gently clean the vagina, and, if necessary, the uterus. The removal of retained portions of the placenta may prevent unpleasant and even dangerous hemorrhage.

The routine administration of fluidextract of ergot three or four times daily for several days after parturition in 1 c.c. (15 minim) doses, is believed by some modern obstetricians to aid and hasten involution of the uterus. If for any reason ergot is not tolerated or is inadvisable, quinin in 0.2 gm. (3 grain) doses twice a day may be of benefit in furthering this object. Just what usage of pituitary extracts is safe has not yet been clinically determined.

(To be continued)

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SATURDAY, NOVEMBER 22, 1913

THE VENTILATION PROBLEM

It is a commonplace that "bad ventilation" and close rooms produce discomfort and more or less injurious consequences to the persons subjected to their influence. The inquiring mind at once asks two questions, related but distinct: 1. To what external factors is this effect due? 2. What are the physiologic changes in the human organism to which these factors give rise? In what does poor ventilation consist and how does poor ventilation affect the human body?

The first question has been answered variously at different stages in the progress of scientific investigation. An early and natural explanation of the ill effects observed in indoor crowding was that either the decrease of oxygen or the increase of carbon dioxid in respired air or both were responsible for the physiologic mischief. It was soon found, however, that the oxygen content of air could be reduced far below that noted in very badly ventilated rooms, and that carbon dioxid could be increased far beyond the amount ordinarily observed under the worst conditions of crowding without producing any of the usual physiologic consequences of bad ventilation. The air of a brewery may contain ten times as much carbon dioxid as that of a very poorly ventilated room, and yet men may work in such an atmosphere for years without any ill effects. Again, lack of oxygen, barring such extreme cases as the famous Black Hole of Calcutta and the ship *Londonderry* with its battened-down hatches, can hardly be a factor in ordinary conditions of ventilation, since there is less oxygen in a given quantity of the air of famous mountain health resorts than in the air of the most crowded room at lower levels. Experimentally, it has been demonstrated repeatedly that neither insufficiency of oxygen nor excess of carbon dioxid can account for the sensation of discomfort experienced in a "close" room.

It was next believed for a time that some organic poison in expired air was at the bottom of the trouble, and most of the "standards" of ventilation long in vogue were drawn up on the assumption that carbon dioxid, although not itself harmful in the proportion that obtained in rooms inhabited by human beings, was nevertheless an index of the organic impurity of the air. Early experiments seemed to give some support to the doctrine of the toxicity of expired air, but the results of these tests were shown later to rest on experimental error, and numberless recent experiments have failed to yield any basis for believing in the presence of a poisonous substance in the breath. This plainly does not mean that the chemical changes in rebreathed air are of no physiologic significance, but simply that there is thus far no evidence that they are the source of the trouble. During the last few years attention has been focused especially on the physical conditions in the air of crowded rooms. The investigations of Flügge, Leonard Hill, Hough, Benedict and Milner and others have emphasized the physiologic importance of high temperature, moisture content and air stagnation in their bearing on the ventilation problem. All these experiments agree in placing the responsibility for the observed physiologic effects on these physical factors. Certainly so far as the available evidence goes, these factors are adequate to explain all we know about the influences of good and bad ventilation. Hill has recently declared that he is "convinced that the whole of the effect of open-air treatment is due to the movement, temperature and moisture of the air, and has nothing to do with its chemical properties." It is a cardinal principle in science that when given effects are satisfactorily explained by a given set of causes it is not desirable to summon in mysterious and unknown agencies to help in explaining something already adequately accounted for. It may be true that other influences than the physical ones mentioned are concerned in the ventilation problem, but at present and until positive evidence is available it is more practical as well as more scientific to deal with the demonstrated and the tangible rather than invoke the existence of unknown and undemonstrable "possibilities."

We cannot at present do more than touch on the way in which these physical factors affect the physiologic mechanism of the human body. Whether by interfering with the heat-eliminating function of the skin as maintained by Flügge, Hill and others, or by inhibiting the process of oxygen secretion in the lungs, as recently suggested by Henderson,[1] warm, moist, stagnant air does in some way prevent the human machine from doing its work properly. The matter of adjustment to changed physical conditions is probably a complex one as shown by the phenomena of adaptation to life at high altitudes, and there are doubtless important differences in individuals that will have to be taken into account in experimental work, but already the analysis of the physiologic reactions to changes in indoor climate seems well under way.

Practically there is still much to learn about ventilation in the actual control of temperature, humidity and air movement. Little or nothing is yet known, for example, about the degree of humidity most favorable

1. Tr. Fifteenth Internat. Cong. Hyg. and Demog., 1913, ii, 622.

to physiologic well-being under ordinary working conditions. Extensive experiments on a sufficiently large number of persons will undoubtedly throw light on this and other obscure points. The ventilation commission appointed by the state of New York and provided with ample funds has an unrivaled opportunity to solve this and kindred problems.

Finally, it may be pointed out that all the discussion and investigation of the factors concerned in ventilation and of the precise nature of the physiologic response does not affect the necessity for good ventilation. Fresh, cool, moving air is just as good as it ever was for the human organism, whether we believe that its virtue is due to the fact that it contains no "toxic substance," or simply that it is fresh and cool and moving. The bad effect of close, stuffy rooms and the good effect of the open air are facts, no matter how we explain these influences or what measures may be found best for meeting the problem of practical ventilation.

A HUMAN BEING WITHOUT CEREBRAL HEMISPHERES

The classic experiment of Goltz[1] in which he removed both cerebral hemispheres from a full-grown dog which was subsequently kept alive for some years has since been duplicated by others and has furnished the basis for important deductions regarding the functions of the portions of the brain involved. In a decerebrate dog it is evident that all those reactions in which the associative memory plays a part are permanently lacking, while the simple reactions that depend on inherited conditions only, may remain. In accordance with this the dog without cerebral hemispheres sleeps and wakes; it moves spontaneously; there is an extreme restlessness doubtless connected with the removal of cerebral inhibitions. Discrimination is shown by such animals with respect to food of varying taste. Goltz's dog could still bark and howl. It could be awakened by noise and it responded to bright light. On the other hand, it could not seek its food and recognized neither master nor companions.

The general impression which one gathers from the investigations of cerebral functions in animals is that their subcerebral centers are complete enough to be able to carry out many motor reactions independently of the higher hemispheres of the brain. It is, of course, desirable to ascertain to what extent the facts of animal experimentation find their analogy in the workings of the human brain. Accidents have furnished numerous instances of partial loss of cerebral substance; but such cases are far from comparable with those in which there is extensive or complete removal of the hemispheres. There are instances on record of human beings born without a cerebrum, but they have been anencephalous fetuses which have survived for only a few days. Even the scanty observations made in such cases have demonstrated that in the absence of a cerebrum movements of the limbs and eyelids, sucking movements and the act of crying can be carried on successfully. It has remained for Edinger and Fischer[2] to furnish the first description of a human being devoid of cerebral hemispheres who has remained alive for any considerable period. Their subject was under observation until its fourth year, when death, due to pulmonary tuberculosis, occurred. We are told that, although the symptoms exhibited by the child gave occasion to assume the existence of some severe brain involvement, prior to the necropsy, no one would have suspected the complete absence of the cerebrum. Entirely occupying the place of this portion of the brain was found a membranous bag filled with fluid, while the lower portions of the central nervous system exhibited a fairly complete and normal structure.

The very satisfactory account of this child's experiences during the three and three-quarter years of its life which Edinger and Hirsch have fortunately succeeded in obtaining impresses one with the decided inferiority of the decerebrate human subject as contrasted with comparable dogs. The child showed scarcely any change of behavior from its birth to its death. This is not true with regard to decerebrated dogs for which suitable records have been obtained. These learned to walk, to assume characteristic postures in the acts of defecation and urination, to alternate sleep and waking. The child never acquired such capabilities. It lay motionless in sleep unless wakened, and unlike the dogs, failed to learn to take food otherwise than by the primitive act of sucking. Like the dogs, it was apparently blind. It seemed impossible to discover a reaction whereby any relation which was semipsychic or conscious on the part of the child could be entered into. To quote the German observers: The child without cerebrum was less capable than a decerebrate fish or frog.

The difference in the reactions of various animals to lesions of the motor cortex is now explained by physiologists as being connected with the gradual shifting of functions from the sphere of necessary reactions to the sphere of educatable adaptations, that is, from the lower centers to the cerebral cortex.[3] This is characteristic of the evolution of the higher type of nervous system and is a concomitant of the increased adaptability which distinguishes man from all the lower animals. In the animal without hemispheres the motor mechanisms for all the movements of the body are present and can be set into action from any point on the sensory surface of the body. The first effect of adding the cerebral hemispheres to this mechanism is to increase the range of reactions, to modify or inhibit them, by diverting the stream of nervous impulses into channels which have to a large extent been laid down in the cortex by the past experience of the individual. In the dog, although a portion of the brain is in direct connection with the

1. Goltz, F.: Der Hund ohne Grosshirn, Arch. f. d. ges. Physiol., 1892, li.

2. Edinger, L., and Fischer, B.: Ein Mensch ohne Grosshirn, Arch. f. d. ges. Physiol., 1913, cliii, 535.

3. An up-to-date review is given by Starling, E. H.: Human Physiology, 1912, p. 498, whose point of view we have accepted.

spinal motor centers, and can therefore initiate movements without making use of the midbrain motor machinery, these movements play only a small part in the motor life of the animal, and the removal of the corresponding centers takes away little of the conscious functions of the animal. In man the enormous power of acquisition of new movements is, as Starling emphasizes further, rendered possible by the shifting of one motor function after another to the sphere of influence of the cerebral hemispheres. Almost every act of human life has come to involve the cooperation of the cerebral cortex. The motor defects and the lack of adaptations exemplified in the child we have described would seem to show that the subcerebral centers in man are not complete and that this lack is permanent.

ANATOMY IN THE FAR EAST

An interesting account recently published by Dr. Elbert Clark,[1] professor of anatomy in the College of Medicine and Surgery of the University of the Philippines at Manila, indicates the pioneer work which has been done by our Bureau of Science in the Far East to foster the adequate study of the fundamental premedical science of anatomy. Probably few practitioners in the United States realize the difficulties inherent in the introduction of this subject among peoples hitherto entirely out of sympathy with the aims of modern science and even positively opposed to the innovations proposed by its teachers. Dr. Clark informs us that to the present time in China a religious respect for custom and tradition, the worship of ancestors and the great fear of arousing public disapproval have made the teaching of anatomy and pathology in the medical schools there all but impossible. Necropsies on natives are not permitted in China and the dissection of a Chinaman, particularly by a foreigner, would be sufficient grounds for a riot. Dissection and necropsy on the human subject are directly opposed to the ancient culture for which China has decidedly more respect than for that of the West. Therefore Clark believes that of all branches of western education modern anatomy and pathology will be the last to gain admission. We are told, however, that should the present form of government continue, the outlook for the study of anatomy may improve rapidly; for the medical missionaries and the Chinese educated abroad, many of them in medicine in America, have been most directly responsible for the "awakening of China," the recent revolution, and the growing popularity of western education.

Dr. Clark remarks that in China, where there is so much superstition concerning the human body—a superstition which many Chinese physicians seem never to overcome thoroughly for themselves—the teaching of dissection should be a most desirable and practical measure in medical education. He adds that a glimpse of what is inside the natural human being would, no doubt, tend to allay much of the native superstition and give the student more confidence in the foreigner's later instruction. In Hongkong the British colony has succeeded in making dissection and necropsies available to the Chinese students; and this new sort of education is said to produce good effects where, owing to a system of education so long in vogue, there is a great tendency to drift into learning anatomy by memory from books. In French Indo-China courses in medicine are given to the natives in the medical school at Hanoi. Inasmuch as the primary object of this institution seems to be to train high-class hospital assistants, quarantine assistants, sanitary inspectors, etc., to fill minor positions in the government service and it is rare to see a native graduate in practice for himself, there is no tendency to develop along higher scientific lines a subject like anatomy, which is of little direct practical value. There has been no policy such as obtains in our Philippines of placing higher education within the reach of the native.

Great as have been the advances in medicine in Japan there still exists, according to Clark, a prejudice against the free use of the human subject by the anatomist or the pathologist. Indeed one gains the impression from Dr. Clark's report that by contrast with what exists elsewhere in the Far East the American dependencies are to be congratulated on the excellent advantages which they offer for medical instruction and the good spirit which seems to actuate the students in the Philippines.

1. Clark, E.: Anatomy in the Far East, Anat. Rec., 1913, vii, 237.

THE HYPOTHESIS OF THE SELF-LIMITATION OF POLIOMYELITIS

Epidemic poliomyelitis does not attack all who are exposed to it, but appears to select its victims, leaving others quite unharmed. In some cases the attack is so mild as to be recognized with difficulty. What can be the reason of this apparent variation in susceptibility? Kling and Levaditi[1] have made some observations that are of much interest and significance with respect to this question. The serum of patients who are in the midst of an attack or who have passed through an attack destroys or neutralizes the poliomyelitis virus. This is demonstrated by injecting monkeys with suitable mixtures of virus and serum. Tests of this kind with the serum of young persons who appeared to be refractory to poliomyelitis because they remained perfectly well while living in the midst of a heavily infected district gave, in two out of nine experiments, complete protection, in five partial protection and in two none at all.

How are such results to be explained? One may suppose that the antibodies on which the resistance would seem to depend are the expression of a natural, inborn immunity or the result of what may be called a latent infection which does not develop to such

1. Kling and Levaditi: Ann. de l'Inst. Pasteur, 1913, xxviii, 538.

an extent that recognizable symptoms are produced — in other words, the result of an acquired immunity due to a spontaneous protective vaccination or inoculation. The virus invading the upper respiratory passages multiplies sufficiently to produce a distinct antigenic effect, but no other appreciable reactions. Kling and Levaditi are inclined to favor the latter hypothesis, at least provisionally. In order to test the correctness of this hypothesis further, it would be necessary to repeat the experiments on the protective action of serum with the serum of individuals that have not been exposed to the virus.

If it should be found that the serum of such individuals is quite devoid of protective action, the hypothesis in question would be strengthened very materially. If, on the other hand, such serum were found to be protective also we would have to conclude that a natural inborn immunity to poliomyelitis does exist in certain individuals. In case the former hypothesis of a latent, clinically harmless infection should be confirmed, then the idea already advanced that the virus of poliomyelitis is much more profusely disseminated than indicated by the occurrence of actual instances of the disease would be securely fortified. If so disastrous a disease as poliomyelitis limits its spread spontaneously by the creation of an active immunity in the manner hypothesized by Kling and Levaditi, it is indeed fortunate.

THE FRIEDMANN "CURE"—FURTHER DISGRACEFUL PRESS WORK

Milwaukee is the western headquarters of the Friedmann "cure" concern. The assistant commissioner of health of that city, Dr. E. Wells Kellogg, seems to be hand-in-glove with those who are exploiting the remedy. On the other hand, the physicians of Milwaukee, practically as a unit, condemn the Friedmann business, and some time ago the Medical Society of Milwaukee County passed resolutions making clear its stand in the matter.

On November 14, Dr. E. Wells Kellogg presented a paper on the subject before the Medical Society of Milwaukee County. The paper was long and rambling, garnished with occasional bursts of oratory of political-campaign type, but containing nothing regarding the nature of the remedy, its method of preparation, or the manner in which it is supposed to bring about the alleged wonderful results. It was devoted chiefly to criticism of the medical profession of the United States and to panegyric of Friedmann and those connected with him. After the paper was read, a number of well-known Milwaukee physicians discussed it freely and fully, and in a manner that left no doubt as to their marked disapproval and condemnation of the whole wretched Friedmann business. The society then passed resolutions, affirming its previous unfavorable opinions in every particular, with the unanimous vote of what was considered the largest attendance ever present at any of the society's meetings.

The Milwaukee newspapers, and for that matter, the newspapers of any city, might be expected to give a brief news-notice of the meeting of its local medical society. Most of the Milwaukee newspapers, with one exception, did this; the exception was the *Sentinel*. This paper reprinted Dr. Kellogg's address verbatim, leading off with display headlines: "MEDICAL MEN HEAR PRAISE OF FRIEDMANN—DEFENSE OF NEW TREATMENT BY DR. E. WELLS KELLOGG." This appeared in the most prominent position on the front page, and, in addition, occupied nearly the whole of one of the inner pages of the paper. While, however, the *Sentinel* devoted over a page of its space to Kellogg's defense of Friedmann, it gave just two inches, by actual measurement, to the action of the medical society in repudiating it, and did not report a single word of the discussion that followed the reading of the paper! We understand that the meeting at which the Kellogg paper was read lasted until midnight, and as the paper was reproduced verbatim in the next morning's issue of the *Sentinel*, it is fairly evident that the whole thing was in type before it was read.

The Milwaukee *Sentinel* is apparently a great deal more concerned in "boosting" the Friedmann "cure" than it is in giving the public both sides and letting it judge for itself. At least we may be justified in assuming that the *Sentinel's* wilful suppression of practically everything that was said against the Friedmann "cure" and its unheard-of "featuring" of a paper read before a scientific body are prompted by a lively sense of benefits to come — or already received. This much, at least, we may infer: If Friedmann's remedy were being introduced in a conservative, scientific, non-commercial way, the *Sentinel* would not have devoted a stickfull of space to it. The incident is typical of the disgraceful commercialism that is characterizing the exploitation of the Friedmann "cure" in the United States.

Current Comment

CONTAMINATION OF MILK BY TYPHOID CARRIERS

The importance of typhoid carriers in spreading typhoid fever is now so clearly recognized as to require no special emphasis. Sometimes it is difficult to find the carrier, and no doubt many instances of outbreaks due to carriers escape recognition on this account. An instructive instance showing how difficult it may be to find the carrier is described by Gruber.[1] It appears that in Munich typhoid fever has been steadily declining during recent years, except in a small part, in which the number of cases for a time persisted and even increased; women, especially servant-maids, being affected more often than men. In one house no less than nineteen cases occurred in the course of a few years. The milk, which was raw, was supplied from four different sources, and eventually it was found that three of the distributors

1. Gruber: Ueber Typhuserkrankungen in München durch eine Bacillenträgerin, Arch. f. Hyg., 1913, lxxx, 272.

obtained their milk at least in part from the fourth, so that in a sense it concerned only one dairy. The strains of bacilli isolated from the patients presented certain cultural peculiarities, and as the reward of much effort the same sort of bacillus was found in the suspected milk also. After a long time, and more or less by accident, a servant-maid working in the place from which the milk mostly came was discovered to be a fecal carrier, eliminating enormous numbers of bacilli, among which some gave cultural characters similar to those peculiar to the strains from the patients and from the milk. This person was removed from her work and isolated, whereupon the epidemic ceased. So far as could be determined, she had never had typhoid fever. The evidence indicates clearly that about one hundred and fifty cases of typhoid must be attributed to this carrier, who of course was quite innocent, not knowing anything of her condition and its results. This, then, is another instance showing the danger of raw milk and how easily it may become the vehicle of disease, even when the general conditions of milk production are quite satisfactory, which seems to have been the case here. Producers of so-called certified milk constantly face the danger of unwittingly employing a person who is a typhoid carrier. Gruber points out that, as things are, the best way is to pasteurize our milk properly.

THE ALLEGED DECISION AGAINST THE AMERICAN MEDICAL ASSOCIATION

So long as the American Medical Association confined itself strictly to scientific work, only soft words, if any at all, were used in speaking of it. When, however, about eight years ago it began to fulfil its broader and more humanitarian functions—began to do things—then came a change. When it started to publish facts regarding fraudulent proprietary medicines; to lay before the public the damning truths regarding the Great American Fraud—"patent medicines"; to expose the commercialism that controlled too many of the medical schools—in a word, to attack various "vested interests" whose existence is largely due to the credulity of medical men and the public—the "soft words" were forgotten, and vicious, malignant opprobrium and epithet took their place. Recently, through newspapers, medical journals, circular letters, etc., the public and the medical profession have been led to believe that the courts have rendered a decision against the American Medical Association to the effect that the Association is illegally organized and is conducting its affairs contrary to law. It is not the policy, either of THE JOURNAL or of the Association to notice the many and varied attacks made on them—life is too short; but the Trustees, believing that many were being misled regarding the decision, have considered it wise to let the actual state of the case be known. Their statement of facts regarding this matter will be found on page 1920 of this issue.

FULL-TIME, SALARIED CLINICAL PROFESSORS

For several years the necessity for having salaried full-time professors in charge of the laboratory branches in medical schools has been recognized, and in the recent agitation for improvements the number of such professors has been largely increased. It is only during the last few years, however, that serious consideration has been given to the matter of placing the clinical chairs on a similarly salaried basis. To a limited extent this has already been done in a few clinical chairs in the Yale Medical School, the University of Pennsylvania, Washington University, Leland Stanford Junior University, the University of California and others. In these institutions, however, the professor's practice has been limited to consultation practice, and there is no evidence that he is prevented from accepting fees for such service. In the provision accompanying the gift of $1,500,000, reported a few weeks ago as having been given by the General Education Board to the Johns Hopkins Medical School, the chairs of medicine, pediatrics and surgery are to be placed on a salary basis, and the holders of those chairs, although free to carry on what practice they desire, are not to charge fees for such work. They are to be given salaries, generous from the point of view of teachers and research men, but not large when compared with the enormous incomes received by the occupants of such chairs in some medical schools. The change is radical, but there are doubtless many clinical teachers who would gladly avail themselves of the fixed, though smaller income which will leave them free to make teaching and research in clinical medicine their first work in life. It may require time to bring about a proper readjustment of these matters and still retain for our medical schools the services of the best clinical teachers. Placing full-time, salaried professors in charge of the laboratory branches has developed a higher quality of teaching in those departments and added largely to the quantity and effectiveness of medical research. There is no doubt that the securing of full-time, salaried professors in the clinical chairs will have an equally beneficial effect; it will not only elevate the standards of clinical instruction, but also develop a more extensive research along the lines of clinical medicine, leading to a wider application of new discoveries in the treatment of disease. In the teaching hospitals connected with these medical schools, furthermore, the patients will secure treatment according to the latest and most improved methods developed through more careful study and research by these full-time professors. In any event the results of this innovation will be watched with interest and with confidence that no backward step has been taken.

UNIQUE FERMENTATIVE CHANGES INDUCED BY BACTERIA

Recently we called attention[1] to the remarkable phenomena described by Neuberg and his collaborators in Berlin[2] involving vigorous fermentation, that is, liberation of carbon dioxid, when yeast is brought into contact with certain organic substances other than sugar. Pyrotartaric acid, for example, responds most vigorously by such a chemical decomposition when yeast-cells are transplanted into a solution of it. That this unusual mani-

1. Alcoholic Fermentation without Sugars, editorial, THE JOURNAL A. M. A., Oct. 11, 1913, p. 1380.

2. The literature of the subject is discussed by Neuberg, C.: Die Gärungsvorgänge und der Zuckerumsatz der Zelle, Monographie bei G. Fischer, Jena, 1913.

festation is not the exclusive biochemical property of yeast-cells has now been demonstrated by investigations conducted in the university at Budapest by Drs. Karczag and Móczár.[3] They have selected as organisms typifying other low forms of life a series of bacterial forms. The results have been most striking in indicating that these organisms, in analogy with the yeast-cells, are likewise capable of inducing gas-production in the presence of pyrotartaric acid. It is particularly interesting to note that this organic compound is decomposed only by those bacteria which are accustomed to act on carbohydrates, and belong in general to the gas-producing group. For example, the colon bacillus, paratyphoid bacillus B and Gaertner's bacillus provoke gas-production in the presence of either glucose or pyrotartaric acid; the bacillus of dysentery and various types of streptococci and staphylococci fail to call forth gas-production in either. The investigation of the gas resulting from the unique reaction described above shows that it is not primarily carbon dioxid, which is the case when yeast is the active agent involved. Over 90 per cent. of the gases formed may be hydrogen with a small residue of carbon dioxid. Corresponding with this difference between the fermentative phenomena of bacteria and those of yeast toward pyrotartaric acid, the other products of this fermentation are unlike in the two cases. Where yeast is concerned, acetaldehyd arises. In the case of the bacteria referred to, however, propionic and butyric acids among other volatile products have already been identified. These observations are among the beginnings of the studies which promise to place the chemistry of the fermentative reactions on a firmer basis of definite knowledge. They further indicate that the type of carbohydrate fermentation with which chemistry has so long been familiar is but one manifestation of the biochemical activity of the numerous lower forms of organic life which play prominent parts in all sorts of physiologic and technical performances.

THE SUSCEPTIBILITY OF ANIMALS TO HUMAN STRAINS OF TRYPANOSOMES

In connection with the investigations of the Scientific Commission of the Royal Society of London which is engaged, under the leadership of Surgeon-General Sir David Bruce, in a study of the trypanosomes causing disease in man in Nyasaland, attention has been directed to the effect of the human strains on various animals. This aspect of the subject is obviously not without importance; for the interrelation of man and animals is such in respect to the possibility of disease transmission that they can no longer be considered as entirely independent of each other where infection furnishes problems to contend with. One or the other may become the unsuspected host of species of invading organisms relatively harmless to itself, but of serious import to its neighbor. From the latest report[1] it appears that the trypanosome causing disease in man in Nyasaland is fatal to goats, sheep, dogs and the smaller laboratory animals, killing them, without exception, in a few weeks. It is less virulent to cattle, many of which escape. No difference in virulence was made out in five strains from man which were tested and which probably belonged to the species *Trypanosoma brucei*.

HOW FAR CAN FLIES TRAVEL?

The growing evidence that insects of various types may become carriers of disease has aroused an unusual interest in the habits and "natural history" of those species, like the mosquitoes and flies, which are the foremost recognized offenders. Their modes of breeding and their normal habitats have been assiduously investigated, as have been the migratory possibilities for the individual types under consideration. The life history of the mosquito is familiar to every reader of a Sunday newspaper or popular magazine. The knowledge of where and how it breeds, whence it comes, whither it travels and how it enters into familiar and unhygienic relations with man, is disseminated everywhere. In most of the stories involving the travels of the mosquito, the species responsible for the infections in which it plays a demonstrated part is made to remain comparatively near to its original breeding-place. At best these insects fly a few hundred feet or are perchance wafted a mile or so on rare occasions in a gust of wind. Statements concerning the restricted travel of the house-fly and the stable-fly have been much of the same order. It is maintained, for example, that house-flies seldom stray more than five hundred yards from their breeding-places, although some English observations prove that they may go a mile from an infected dump to the nearest village. A curious incident in connection with the Cleveland antifly campaign has brought some rather unexpected, yet positive evidence on the the migration possibilities of flies. A request was sent for some means of relief from the plague of flies on the cribs of the water-works, situated a mile and a quarter, five miles and six miles out in Lake Erie north of the city. An investigation was undertaken by C. F. Hodge,[1] whose vigorous activities in the antifly crusade in the United States are widely appreciated. The invasion of the flies could not be charged to passing steamers or to conditions obtaining on the cribs. Although tenders live on the cribs, there are no animals and there is absolutely nothing in which flies of any kind could breed. All garbage and waste matters are dumped immediately into the lake or are put into a tight incinerator and burned daily. Lake steamers pass within about half a mile of the cribs, but none of the men had ever noticed any evidence of flies coming from them. All the crib-tenders maintain that a south wind brings a cloud of flies from the city and that a north wind carries them away. No smaller boats were anywhere near the cribs that day and seldom come near them. The only explanation which occurs to Hodge seems to be that the flies are blown at least six miles off shore, and that they gather on the cribs as temporary resting places. Attraction of any other sort cannot be a strong factor, else they would remain on shore, attracted

3. Karczag, L., and L. Móczár: Ueber die Vergärung der Brenztraubensäure durch Bakterien, I. Biochem. Ztschr., 1913, lv, 79.

1. Bruce, D.; Harvey, D.; Hamerton, A. E., and Bruce, Lady: The Trypanosome Causing Disease in Man in Nyasaland; Susceptibility of Animals to the Human Strain, Proc. Roy. Soc. London (B), 1913, lxxxvii, 35.

1. Hodge, C. F.: The Distance House-Flies, Bluebottles and Stable-Flies May Travel Over Water, Science, 1913, xxxviii, 512.

by the animals and men along the docks and the much richer food-supply. He says that while not entirely conclusive, the evidence seems strongly to support the theory that flies of certain kinds are able to travel much farther than is commonly supposed. Flies which have traveled these long distances appear to be ravenously hungry and some of them bite viciously. It is not difficult to trap them under these conditions.

THE COLD BATH IN FEVER

Stewart[1] advances the opinion that the rise of temperature in fever is incidental to a general contraction of the peripheral vessels by which more blood is supplied to the internal organs, particularly to the vessels of the splanchnic circulation. He suggests that the contraction of the peripheral vessels is a therapeutic process to be favored rather than opposed, and therefore that the means taken to reduce temperature should be such as will abstract heat and still maintain the contraction of the vessels of the extremities. For this purpose he regards the cold bath as especially suitable because it abstracts heat without dilating the cutaneous vessels. The theory on which cold bathing in fever has generally been practiced is that it acts as a tonic to the nervous system and by the production of a reaction affects better distribution of the blood. It has been advised to rub the patient while in the bath and after his removal so as to secure a reaction indicated by redness and warmth of the extremities; but if the opinion of Stewart is true, and if his experiments are confirmed, we shall be compelled to change our views as to the importance of securing a reaction. If it is desirable to maintain the internal congestion, the cold bath is an admirable means to effect this purpose, but we should avoid the reaction or at least take no pains to produce it by rubbing. The rubbing, by attracting the blood from the internal organs to the periphery, would seem calculated to defeat the purpose of the contraction of the peripheral vessels which characterizes the fever.

PARENTERAL VERSUS ORAL NUTRITION

Scarcely ten years have elapsed since Oppenheimer[2] proposed the word "parenteral" to express a mode of introducing foodstuffs into the body by some path other than *per os*. Parenteral nutrition has thus become contrasted with oral feeding, and the new term has already found a wide acceptance. The possibilities and problems of furnishing food to the organism, subcutaneously, intravenously, intraperitoneally, or even intramuscularly, have been the subject of discussion, particularly with reference to conditions of a pathologic nature when the usual practice of feeding by way of the mouth has to be abandoned for some reason or other. The result of most of the work in this field has been to demonstrate the futility of attempting to furnish food to the cells of the body in any form other than that in which it is usually prepared by the digestive processes. Paradoxical as it may sound, most of the ordinary nutrients behave like poisons in the body when they are introduced as such parenterally and meet the tissue of the individual in their native form. Few carbohydrates can be injected directly, that is, parenterally, and become utilized in any direct manner. Cane-sugar, for example—one of the commonest of dietary ingredients—is managed like a foreign substance whenever it reaches the blood-stream in its original chemical form. The kidneys quickly eliminate it in good measure. Appropriately emulsified fats may experience a somewhat better fate, though they tend to remain deposited a long time at the site of their parenteral introduction, unless it be directly into the swiftly moving blood-stream. For proteins the practical possibilities of parenteral administration have been eliminated almost entirely. With the danger of death by anaphylactic shock ever present, few physicians would venture to furnish unaltered proteins to patients by a parenteral route. The hope of the future in the direction of parenteral nutrition lies in devising satisfactory practical schemes for employing not the dangerous native proteins, fats and carbohydrates, but rather such digested representatives thereof as are normally prepared out of our foodstuffs in the alimentary processes and are furnished for absorption. As we have remarked on previous occasions, there is an excellent opportunity for useful work in this direction to supplant oral nutrition whenever for the time being it becomes a practical impossibility.

1. Stewart: Jour. Exper. Med., October, 1913.
2. Oppenheimer, C.: Ueber das Schicksal der mit Umgehung des Darmkanals eingeführten Eiweissstoffe im Tierkörper, Beitr. z. chem. Phys. u. Path. (Hofmeister's), 1904, iv, 263.

Medical News

GEORGIA

Epidemic Diseases.—It is reported that 10 per cent. of the people of Savannah are suffering from dengue.

Honor to Memory of Georgia Physician.—At the State Normal School, Athens, November 1, was celebrated the anniversary of the birth of Dr. Crawford W. Long, discoverer of ether-anaesthesia.

New Medical Board Officers.—At the first meeting of the new State Board of Medical Examiners, the following officers were elected: president, Dr. Jarrett W. Palmer, Ailey; vice-president, Dr. G. Fleming, Waycross; secretary, Dr. Charles T. Nolan, Marietta.

Tuberculosis Institute Incorporated.—A petition has been filed for the incorporation of the W. G. Raoul Foundation. Captain Raoul set aside a bequest of $100,000, directing that it be used to combat tuberculosis by educating the people and by working for prevention as well as by treating those ill with the disease.

Personal.—Dr. Edgar L. Hawley, Atlanta, was shot but not seriously wounded by a burglar, November 1.——Dr. Charles F. Curtis, Decatur, was awarded a verdict of $750 October 29 in a suit for $10,000 against the city of Atlanta for injuries alleged to have been received through the city's carelessness in leaving a dangerous hole in one of the streets. ——Dr. and Mrs. Dunbar Roy, Atlanta, have returned from Europe.

New Officers.—Tenth District Medical Society at Augusta, November 5: president, Dr. George A. Traylor; secretary-treasurer, Dr. H. William Shaw, both of Augusta.——Georgia Surgeons' Club, organized at Atlanta November 5: president, Dr. Edward C. Davis, Atlanta; vice-president, Dr. Thomas J. McArthur, Cordele; secretary-treasurer, Dr. Robert M. Hardin, Rome. The club decided to visit New Orleans as a body in February, and to take other medical trips later on from time to time during the year.

ILLINOIS

Children's Clinic.—St. Joseph's Hospital, Alton, has established a children's clinic which is open every Tuesday and Friday morning, from 8 to 11 o'clock.

Personal.—Dr. and Mrs. William H. Mercer, Raymond, have sailed for Europe.——Dr. George R. Smith, Bloomington, who was stricken with cerebral hemorrhage recently, is reported to be improving.

New Officers.—Southern Illinois Medical Association, thirty-eighth annual session at Duquoin November 7: president, Dr. Charles W. Lillie, East St. Louis; secretary, Dr. Alonzo B. Capel, Shawneetown. Mount Vernon was selected as the next place of meeting.

State Hospital Site Selected.—The members of the State Board of Administration, on November 15, definitely settled that the new million-dollar hospital for the insane should be located on the northeastern portion of the Kilpatrick farm, 1½ miles west of Upper Alton.

Chicago

Red Cross Branch to Be Established.—Mr. Ernest P. Bicknell, director of the American Red Cross, announced that the work of the national body has become so heavy that it has been decided to divide the work into four divisions, of one of which Chicago is to be the headquarters.

Asked Increased Appropriation. — Health Commissioner Young has asked an appropriation of $1,190,278 for the Department of Health for the coming year. The actual increase over the last appropriation is $450,000, of which $335,000 is for reorganization of the department and increase in the staff.

Ophthalmologic Banquet.—The meeting of the Chicago Ophthalmological Society, November 17, was preceded by a reception and banquet in honor of Lieut. Col. Robert H. Elliot, I.M.S., Madras, India; Dr. Edward Jackson, Denver; Dr. George Edmund de Schweinitz, Philadelphia, and Dr. John E. Weeks, New York City.

KANSAS

Personal.—Dr. George Nealley, Lansing, is reported to be seriously ill as the result of a cerebral hemorrhage.——Dr. Andrew Pearson, Wakefield, was seriously injured in an automobile accident October 25.——Dr. Mark L. Bishoff, Topeka, has been appointed superintending physician of the Santa Fe Employees' Hospital, Fort Madison, Ia.

Society Defends Fryer.—At the meeting of the Leavenworth County Medical Society September 18, resolutions were unanimously adopted which enter a vigorous protest against and condemn the action of the board of managers of the Western Branch. National Home for Disabled Volunteer Soldiers, in making charges against Dr. John L. Fryer, surgeon of the Western Branch, and requesting his resignation; bearing testimony to the esteem in which Major Fryer is held by the members of the society, and to his efficiency in the management of the Soldiers' Home Hospital.

KENTUCKY

New County Sanatoriums.—At the election November 4, Fayette, Henderson and Christian counties voted to establish tuberculosis sanatorium districts.

Personal.—Dr. John H. Buschemeyer has been elected mayor of Louisville.——Dr. John H. Van Deren, Cynthiana, was painfully injured by the overturning of his automobile between Cynthiana and Paris, November 5.——Dr. William R. Ruble, Smith's Grove, is reported to be seriously ill in a sanitarium in Cincinnati.——Dr. C. W. Froedge, Glasgow, fell from his horse October 20, fracturing his right forearm.——Dr. John W. Watson, Henderson, was seriously injured in a runaway accident recently.

LOUISIANA

New Officers.—Ascension Parish Medical Society organized at Donaldsonville: president, Dr. E. Kittredge Simms, Donaldsonville; secretary-treasurer, Dr. Allen W. Martin, Alexandria.

Personal.—Dr. and Mrs. William T. O'Reilly, New Orleans, celebrated their silver wedding anniversary October 24.——Dr. and Mrs. Otto Lerch, Dr. and Mrs. L. Sexton and Dr. Edmund Moss, all of New Orleans, have returned from abroad.

Clinic for Italians.—A free clinic for the Italian poor of New Orleans was opened November 10 by the Italian Hall Association. The clinic is open from 8:30 to 9 in the morning and the physicians of the staff alternate in duty at the clinic.

New Régime at Charity Hospital.—Dr. C. B. Wilkins assumed charge as superintendent of Charity Hospital, New Orleans, October 1. Dr. Wilkins is receiving the most cordial support both from the management of the hospital and the visiting and resident staff. The services have been divided as follows: Surgical division, nine chiefs—Drs. Rudolph Matas, Frederick W. Parham, Hermann B. Gessner, John Smyth, Martin, Felixi A. Larue, Joseph A. Danna, Stephen W. Stafford and James M. Batchelor; medical division, six chiefs—Drs. John B. Elliott, Jr., John T. Halsey, George S. Bel, Wellman, George F. Patton and Joseph M. Elliott; gynecological and obstetrical division, four chiefs—Drs. Paul Michinard, C. J. Miller, Clark and William Kohlmann; division of children's diseases, medical, three chiefs—Drs. William W. Butterworth, Laurence R. DeBuys and Charles A. Borey; orthopedics and surgical diseases, children's division, three chiefs—Drs. Erasmus D. Fenner, Herman Oechsner and Edward S. Hatch; ear, nose and throat division, three chiefs—Drs. Charles J. Landfried, Otto Joachim and Homer J. Dupuy; eye division, two chiefs—Drs. Marcus Feingold and Theodore J. Dimitry; skin division, three chiefs—Drs. Isadore Dyer, Henry E. Menage and Joseph N. Roussel, and genito-urinary division, three chiefs—Drs. Charles L. Chassaignac, Joseph Hume and Abe Nelken. Each visiting chief has been assigned the wards, beds and out-door clinics for which he is to be responsible. The remainder of the visiting staff has been graded and assigned to service under the different chiefs. The following resident medical officers have been appointed: Dr. Lewis B. Crawford and Dr. Lucien A. Fortier to be resident surgeons; Dr. William B. Chamberlain to be resident gynecologist and obstetrician; Dr. Houston Staring to be resident physician.

MAINE

Personal.—Dr. Arthur G. Wiley, Bar Mills, is said to be seriously ill with typhoid fever at his home.——Dr. Willis G. Jefferson, Portland, severed his right hand at the wrist November 4. It is supposed the act was done in a fit of religious frenzy.

Fairfield Sanatorium.—The Central Maine Association for the Relief and Control of Tuberculosis is erecting at Fairfield a new building for incipient cases with a capacity of forty beds, to replace the building destroyed by fire in July. It also plans to erect a hospital for advanced cases, a cottage for children suffering from tuberculosis and an administration building. The medical staff has been reorganized with Dr. Auguste U. Des Jardins, Waterville, as medical director, and the following consulting board: Drs. Addison S. Thayer, Portland, William C. Peters, Bangor, O. C. S. Davies, Augusta, and Frederick C. Thayer, Waterville, consulting physicians; Dr. Donald B. Cragin, Waterville, consulting surgeon, and Dr. John F. Hill, Waterville, consulting laryngologist.

MASSACHUSETTS

Quincy Wants Contagious Hospital.—An order appropriating $35,000 for the new hospital for contagious diseases in Quincy has been introduced into the City Council.

Personal.—Dr. Frank G. Fay, Worcester, is chief legatee in the will of Louisa C. Whittemore of Worcester, who died a few days ago.——Dr. John H. Gifford, Fall River, has been appointed society medical examiner of Bristol County.

Medical Alumni Meet.—The Harvard Medical Alumni Association held a reception November 14 at the Harvard Medical School and the neighboring hospitals. At the medical school all the laboratories were open and demonstrations were given by members of the staff, and special clinics and demonstrations were also offered at the hospitals near the medical school. An informal reception was held in the Administration Building, after which light refreshments were served.

The School for Health Officers.—As set forth in the Monthly Bulletin of the Massachusetts State Board of Health, September, 1913, the Massachusetts Institute of Technology and the Harvard University have joined hands in establishing a school for health officers. The department of preventive medicine of Harvard and the department of sanitary engineering of the Graduate School of Applied Science of the same institution and the department of biology of the Massachusetts Institute of Technology are the departments having supervision over the school. The school for health officers will be an adminis-

trative entity under the charge of an administrative board, at present to be composed of Prof. W. T. Sedgwick of the Institute of Technology; Prof. M. J. Rosenau of the Harvard Medical School and Prof. Geo. C. Whipple of the Graduate School of Applied Science. Professor Rosenau will be director of the school. Graduates in medicine of Harvard University and other recognized medical schools will be admitted on their records, and registered as candidates for the certificate of public health. Bachelors of science in biology and public health of the Institute of Technology and other recognized institutions may also be admitted. Persons having certain other degrees and experience from other schools and colleges may also be admitted to the course with certain conditions. Special students not candidates for the certificate of public health who desire to fit themselves for some special field will be admitted and may take any course for which they are properly qualified. While the medical degree is not required for the certificate of public health, candidates are advised to obtain this degree first, as it is felt that the higher positions in public health work come more readily to those who have a medical degree. There will be no prescribed curriculum for the certificate, but they will be required to elect a schedule of courses to meet their needs. The school for health officers will not interfere in any way with the present doctor of public health degree (Dr. P.H.) now offered by Harvard University.

MICHIGAN

New Quarters for Medical Society.—Dr. Edward G. Martin, Detroit, announced at the last meeting of the Wayne County Medical Society that the new auditorium, which will accommodate 500 persons, will be completed in January next.

Personal.—Dr. Daniel H. Eaton, Kalamazoo, suffered a fracture of the skull in an automobile accident, November 5.——Dr. Robert L. Dixon, Lansing, secretary of the State Board of Health, has resigned to accept the superintendency of the State Epileptic Farm Colony at Wahjameja.——The Lansing Clinical Club gave a complimentary dinner to Dr. Louis W. Toles, president of the club, November 4.——Dr. Hugh Cary, Detroit, is reported to be critically ill.——Drs. Thomas A. Baird, Edward C. Warren, J. William Gustin, George W. Moore, Munger, and Virgil L. Tupper, Bay City, have returned from Europe.——Dr. Joseph A. M. Clark, Cascade, was painfully injured in a collision between his motor car and a street car in Grand Rapids, October 27.

New Officers.—Michigan Association for the Prevention and Relief of Tuberculosis at Kalamazoo November 7: president, Dr. Herman Ostrander, Kalamazoo; secretary, Miss Carol S. Walton, Ann Arbor; treasurer, Dr. Henry J. Hartz, Detroit. ——Tri-County Medical Society at Cadillac, November 6: president, Dr. Otto L. Ricker, Cadillac; vice-president, Dr. Albert E. Stickley, Mesick; secretary-treasurer, Dr. Rudolph J. E. Oden, Cadillac.——Eaton County Medical Society at Charlotte, November 6: president, Dr. C. A. Stinchcombe, Eaton Rapids; secretary-treasurer, Dr. Cassius S. Sackett, Charlotte.——Southwestern Michigan Eye, Ear, Nose and Throat Society organized at Kalamazoo, November 4: temporary chairman, Dr. Edward J. Bernstein, Kalamazoo; temporary secretary, Dr. Wilfrid H. Haughey, Battle Creek.——Genesee County Medical Society at Flint, October 28: president, Dr. Mark S. Knapp; secretary, Dr. Robert D. Scott, both of Flint. ——Tuscola County Medical Association at Caro: president, Dr. Robert H. Steinbach, Richville; secretary-treasurer, Dr. Wynne C. Garvin, Millington.

MINNESOTA

New Officers.—Blue Earth Valley Medical Society at Blue Earth October 30: president, Dr. Peter F. Holm, Wells; secretary, Dr. John A. Broberg, Blue Earth (reelected).

State to Sell Antitoxin at Cost.—Dr. Henry M. Bracken, Minneapolis, secretary of the State Board of Health, has notified local boards throughout the state that the department of health is now prepared to supply diphtheria antitoxin at cost.

Southern Minnesota Physicians to Meet.—At the annual meeting of the Southern Minnesota Medical Association to be held in Mankato, December 2 and 3, arrangements have been made for addresses by Dr. James B. Herrick, Chicago, on "The Bundle of His," with lantern slide demonstrations, by Dr. Ludvig Hektoen, Chicago, on "The Cause of the Crisis in Pneumonia," and by Dr. Robert H. Babcock, Chicago, on "Acute and Sub-Acute Endocarditis," with specimens. Dr. Babcock will also hold a clinic on diseases of the heart and lungs. These papers from outside men are in addition to a number of excellent articles by members of the profession of Southern Minnesota.

NEBRASKA

For Nebraska Newspaper Readers.—The owner of the Omaha *World-Herald* is Senator Gilbert M. Hitchcock, and in one issue of his newspaper one reads a half-page advertisement, headed "Cancers Cured Without the Dreaded Plaster Treatment"—a full half-page of delusion for the victims of an incurable disease. While the proprietor is kept busy at Washington his journal fairly reeks with an odious class of medical advertising. But who is downhearted? Ten years ago United States senators were giving out patent-medicine indorsements to the Great American Fraud, testimonials which they were willing to see published broadcast in newspaper advertisements. Ten years hence newspapers owned by United States senators will be turning down quack advertisements, if not because senators have improved by that time, then because their reformed competitors will have forced them into virtue's way. All Senator Hitchcock needs is a little time to think it over.—*Collier's Weekly.*

NEW YORK

An American Spa.—Dr. Paul Haertl, head of the Royal Chemical and Balneologic Laboratory, Bad Kissingen, Germany, arrived in New York November 12. He came to this country on the solicitation of Dr. Simon Baruch, New York City, who had urged the reservation commission, of which George Foster Peabody is chairman, to obtain counsel and cooperation of Dr. Heartl in the final plans for making Saratoga Springs a health resort on which physicians and the public may depend. The state has expended $1,000,000 in the purchase of the mineral water rights and 250 acres of land with the idea of developing a great health resort.

New York City

Personal.—Mr. Frederick B. Morlock, for ten years chief clerk and assistant treasurer of the Presbyterian Hospital, has been appointed superintendent of the Flower Hospital.——Dr. Joseph W. Moore of Manhattan State Hospital, Wards Island, has recently been appointed first assistant physician at the Matteawan State Hospital.——Dr. D. Bryson Delavan has recovered from a serious operation which he underwent last spring and has resumed his practice.

All Milk for Drinking Purposes Must Be Pasteurized.—Health Commissioner Lederle has announced that the Board of Health has adopted two regulations affecting the sale of raw milk. The first amends the sanitary code so as to forbid the sale of raw milk for consumption on the premises and removes Grade B, the class of raw milk that was formerly permitted to be sold under that designation. Only milk produced under regulations governing the sale of certified milk can be sold raw; all other grades of milk must be pasteurized. This action is the last step in a carefully worked out plan that has gradually been put into effect during the past four years to bring about the pasteurization of the entire milk supply of the general market of New York City. Warnings have also been issued to housewives by the health department warning them that they are liable to prosecution for returning to the drivers of milk wagons bottles which have not been properly cleansed.

Large Donation to Medical School.—The Board of Trustees of Cornell University announces that a gift of about $4,000,000 has been made to endow the Cornell University Medical College. It is understood that the donor is Col. Oliver Hazard Paine, New York City, who gave $500,000 several years ago for the establishment of the school. This endowment fund will provide an annual income of $200,000 for the medical school. This is one of the greatest individual gifts ever given to an educational institution, and it is especially pleasing that it is given for the advancement of medical education. With this increased endowment Cornell is given an exceptional opportunity to develop a thorough, systematic and complete course of training for medical students, under the ablest teachers and in an atmosphere of medical research. The school cannot fail to turn out better-equipped doctors, imbued with a faith in greater things to come in medicine, and enthusiastic in their desire to aid in solving the complex problems of alleviating and preventing disease.

Babies' Welfare Work Reduces Infant Mortality.—The Babies' Welfare Association has announced the results of an investigation made by the Department of Health, covering the period of hot weather. Out of 33,000 babies under 2 years of age enrolled in the fifty-five milk stations of the department, between January 1 and November 1, the death rate was only four to a thousand, in spite of the fact that a large number of these babies were suffering from digestive disturbances at the time of enrolment. During June, July and August only 113 milk station babies died. At the same time the death-rate of the babies of the city under 2 years of age was 75 per thousand. There have been 493 fewer deaths of infants under 1 year of age in all the boroughs than during the same period of time in the previous year. If this record continues for the remainder of the year New York will be able to show an infant mortality of only 100 or less for each one thousand births.

New Hospitals.—The facilities for the treatment of tuberculosis in New York City were enlarged by the opening of a new hospital known as Sea View, located at Castleton Corners, Staten Island, at a cost of more than $3,000,000. Eighty patients have already been admitted to the institution which has accommodation for 1,000 patients who are housed in eight pavilions arranged in a semi-circle so that sunlight may enter every room and ward.——The new building of the Herman Knapp Memorial Eye Hospital at Fifty-Seventh Street and Tenth Avenue has been opened. The hospital was founded by the late Herman Knapp in 1869 and has been known as the New York Ophthalmic and Aural Institute. In this institute more than 420,000 patients have received treatment. The new building is a seven-story, fire-proof structure with the most modern equipment for the treatment and study of diseases of the eye.——The corner-stone of the new Hospital for Deformities and Joint Diseases was laid November 5. The principal address was delivered by Dr. Abraham Jacobi.

NORTH CAROLINA

Sanatorium to Open.—The State Sanatorium for Tuberculosis, Montrose, is to be opened December 1. The institution has accommodation for more than 100 patients and many applications have already been received.

Personal.—Dr. James W. Magee, Raleigh, who has been ill in his home for several weeks, has recovered and has resumed practice.——Dr. John L. Carroll, Asheville, his wife, sister and brother sustained painful injuries in an automobile accident recently, but all are reported to be recovering.

Fire in Medical School.—A fire in the Leonard medical building, November 5, burned out the laboratories on the two upper floors and seriously damaged the laboratory on the first floor. The walls of the building are intact but the roof was badly damaged. The building is being repaired and will be reequipped as soon as possible.

Exhibits at Teachers' Assembly.—During the annual session of the North Carolina Teachers' Assembly in Raleigh, November 26-29, Dr. Albert Anderson, superintendent of the State Hospital for the Insane, will have a mental hygiene exhibit and will hold conference for the benefit of the teachers. The State Board of Health will also have an exhibit.

Antityphoid Vaccination.—The State Board of Health announces: "Vaccination against typhoid has successfully passed all the tests of science and practice, and has won as prominent a place among sanatoriums as has vaccination against small-pox." The board, having established a plant for the preparation of antityphoid vaccine under authority granted at the last session of the state legislature, invites physicians who wish to employ the vaccine to apply for it as it will be furnished without cost.

School for the Feeble-Minded.—At the recent session of the legislature an appropriation of $70,000 was made to complete the buildings and open the State School for the Feeble-Minded, Kinston, on which work was begun about two years ago. Originally the state appropriated $60,000, later adding $10,000, which was supplemented by donations from citizens of Kinston and Lenoir, making the actual value of the state's investment in the institution fully $120,000. The work of Dr. Alfred A. Kent, Lenoir, state senator, and Dr. James A. Gordon, Jamestown, state representative, was indefatigable and their efforts were ably aided by Dr. Ira M. Hardy, later secretary of the board of trustees and superintendent of the institution. Dr. Hardy has given his entire time to this work for the last two years, and expects the building will be completed and the school opened next year.

PENNSYLVANIA

New Officers.—Bucks County Medical Society at Doylestown, November 14: Dr William LeComte of Bristol, president.

Hospital at Mine.—The Reading Coal and Iron Company has established, for the benefit of its employees, a hospital at its Locust Spring colliery.

Personal.—Dr. Frederick W. Brown has been elected mayor of Franklin.——Dr. Howard Pursell has been appointed president of the Bristol Board of Health.

Hospital Staff Entertained.—The physicians of the staff of the Wilkinsburg State Hospital were given a dinner November 6, by Dr. William C. Reese, Scranton.

Beriberi on Ship.—A case of beriberi was discovered among the Chinese crew of the British steamship *Strathmore*. The victim is in the Quarantine Hospital at Marcus Hook.

Contract Awarded.—A contract has been awarded for the brick and stone buildings to be erected at Fairview, Pa., for the State Hospital for the Criminal Insane. The buildings will cost $135,000.

Philadelphia

Hospital to Change Location.—The Lebanon Hospital, now located at Fourth and Spring Garden Streets, has purchased three large properties at Seventh and Columbia Avenue and plans to erect a new hospital on this site at a cost of $40,000. This institution was established in 1909 and its work has expanded to such an extent that the present building is wholly inadequate to the demands of this congested section of the city.

To Standardize Training of Nurses.—At the eleventh annual session of the Graduate Nurses' Association of Pennsylvania, held November 14 in the College of Physicians, plans for the standardization of the training of nurses were considered. The nurses discussed the advisability of combining small nurses' training schools with large ones in order to increase the efficiency. The committee of fifteen nurses was appointed to cooperate with the State Board of Examiners in working for a standard system of education in all nurses' training schools throughout the state.

Personal.—Dr. Robert Tait McKenzie, professor of physical education in the University of Pennsylvania and a sculptor of renown, has completed a medallion of Dr. Horatio R. Storer of Newport, R. I.——Mr. Daniel Baugh, on behalf of the Jefferson Medical College, has sent out invitations for a reception at his residence, December 2. The guests of honor will be Dr. W. W. Keen, emeritus professor of surgery; Dr. W. Joseph Hearn, emeritus professor of clinical surgery; Dr. James C. Wilson, emeritus professor of medicine; Dr. James W. Holland, emeritus professor of chemistry and toxicology.——Dr. Herbert M. Goddard has been appointed to the post of laryngologist to the Jewish Hospital.——Dr. Charles H. Frazier, professor of clinical surgery at the University of Pennsylvania, was elected president of the Public Charity Association of Pennsylvania, October 30.

County Society Condemns Critics of Judiciary.—At a recent meeting of the Philadelphia County Medical Society a resolution was adopted repudiating the attack made upon the judiciary of the courts of common pleas in a paper read at the recent meeting of the state society in this city. The resolution was, in part, as follows: That the board of directors of the Philadelphia County Medical Society deplore the criticism of the judiciary of the Common Pleas Courts of Pennsylvania, recently made by a member of the Medical Society of the State of Pennsylvania during the recent session of the society in Philadelphia. The board of directors feels that the members of the profession in Philadelphia who appear from time to time before our courts of common pleas have been treated with the utmost consideration, courtesy and justice by those presiding. Judge Norris S. Barrett, of the Court of Common Pleas has, in a communication, thanked the local county society for this action.

Officers Elected.—At the business meeting of the Philadelphia County Medical Society, October 15, the following nominations were made for officers to serve during the year 1914: president, Dr. William D. Robinson; vice-president, Dr. Herbert A. Hare; secretary, Dr. William S. Wray; treasurer, Dr. Edward A. Shumway; directors, Drs. Herman B. Allyn, G. Morton Illman, John D. McLean. The following delegates were named for the State Medical Society: Drs. Wilmer Cruson, G. A. Knowes, Thomas R. Currie, J. F. Schamberg, and William M. Welsh. The following officers were nominated at

the regular quarterly meeting of the Medical Club, October 17: president, Francis X. Dercum, Samuel D. Risley, Wilmer Krusen; first vice-president, McCluney Radcliffe; secretary, William S. Wray; treasurer, Lewis H. Adler; governor, Clarence P. Franklin; directors, Ellwood R. Kirby, William E. Hughes, Swithin Chandler, Paul Judd Sartain, Alexander McAllister, E. Horgan, Matthew Woods, H. H. Whitcomb, Herbert B. Carpenter, Rae S. Dorsett.

SOUTH CAROLINA

State Society Wins Suit.—In the case of the South Carolina Medical Association against Frank B. Griffith, a suit which grew out of the building of the Roper Hospital, Charleston, the opinion of the United States District Judge, filed October 4, is in favor of the society.

Personal.—Dr. Ernest M. Rast has been reelected intendant of Cameron.——Dr. Pinckney V. Mikell has succeeded Dr. Samuel E. Harmon as a member of the Health Board of Columbia.——Dr. James L. Bolt, Easley, has been elected a member of the house of representatives from Pickens County.

New Officers.—Charles County Medical Association at Charleston November 6: president, Dr. William H. Johnson, Charleston; secretary, Dr. Michael M. Edwards.—Third District Medical Association at Abbeville: president, Dr. Thomas L. W. Bailey, Clinton; secretary-treasurer, Dr. J. E. Presley, Abbeville.

WISCONSIN

Sanatorium Notes.—The Eau Claire County Tuberculosis Sanatorium, recently erected at a cost of $36,000, is ready to receive patients.——The board of control has decided to establish a tuberculosis camp at Tomahawk Lake, at an expense of about $10,000.

Inebriate Ward Ready.—The inebriate ward of the Milwaukee County Hospital for the Insane has been opened, and instead of sentencing habitual drunkards to the House of Correction for short periods, they will now be committed to the inebriate ward for treatment.

Antituberculosis Officers Elected.—At the fifth annual meeting of the Wisconsin Antituberculosis Association held in Milwaukee, the following physicians were elected officers: president, Dr. Mazyck P. Ravenel, Madison; second vice-president, Dr. Gustave Windesheim, Kenosha; recording secretary, Dr. Clarence A. Baer, Milwaukee, and executive secretary, Dr. Hoyt E. Dearholt, Milwaukee.

Hospital Notes.—A five-story, fire-proof building will be erected by the Mount Sinai Hospital Corporation in Milwaukee at Twelfth and Cedar streets. The building will be of brick and stone construction and will cost about $160,000.——The Common Council of Waukesha has selected a site for a municipal hospital at North Street and Delafield Avenue.——An addition to the Evangelical Hospital, Milwaukee, was authorized by the Board of Directors at its last meeting. The annex will adjoin the present structure and will cost $30,000.

Personal.—Dr. Horace M. Brown, Milwaukee, has returned from abroad.——Drs. A. L. Cludas and Louis Clonchlin of Mexico City were recent visitors in Milwaukee.——Dr. Fred Johnson, North Freedom, has been appointed district officer of the State Board of Health with headquarters at Eau Claire.——Dr. George N. Hidershide, Arcadia, a Civil War veteran, has received a medal of honor from the war department.——Dr. Mazyck P. Ravenel, Madison, has been appointed chairman of the national committee on standard methods for the bacteriological examination of milk.——Dr. Charles O. Latham, Darlington, has been appointed resident physician at the State Reformatory for Boys, Green Bay.——Dr. Helen A. Binnie, Milwaukee, has been appointed medical superintendent of the Miners' Hospital, Frostburg, Md.

GENERAL

Congress Elects Officers.—The following officers of the Clinical Congress of Surgeons of North America were elected, Thursday, November 13, 1913; president, Dr. John B. Murphy, Chicago; vice-president, Dr. George E. Armstrong, Montreal, Quebec; secretary, Dr. Franklin H. Martin, Chicago (reelected); treasurer, Dr. Allen B. Kanavel, Chicago (reelected); business manager, Mr. A. D. Ballou, Chicago (reelected). The next meeting of the congress will be held in London, England, the fourth week in July, 1914. A special committee was appointed to take up the work of standardization of surgery. This committee is composed of Drs. Lewis S. McMurtry, Louisville, Ky.; Charles H. Peck, New York City; Henry P. Newman, San Diego, Cal.; William L. Cousins, Portland, Me., and Charles A. Davison, Chicago.

American College of Surgeons.—The convocation exercises of the American College of Surgeons were held in Chicago, November 12. The names of the surgeons who were made members of the college were read by the secretary, Dr. Franklin H. Martin, Chicago, and the president, Dr. John M. T. Finney, Baltimore, pronounced them fellows of the college. The number admitted to the organization was 1,050.

North Pacific Surgical Association.—The surgeons of Oregon, Washington and British Columbia met in Portland, Ore., March 9, 1912, and organized the North Pacific Surgical Association, with a charter membership limited to thirty-six, and adopted the following qualifications for membership: "Candidates for membership shall be 30 years of age, graduates of at least five years' standing of recognized schools of medicine, members in good standing of their state and provincial medical associations, whose achievements in surgery, as practitioners, operators, investigators, teachers or authors, entitle them to membership." The following officers were elected for the year 1913: president, Dr. C. W. Sharples, Seattle; vice-presidents, Drs. A. S. Monro, Vancouver, B. C., and Andrew C. Smith, Portland; secretary-treasurer, Dr. J. B. Eagleson, Seattle; councilor, Dr. A. Raymond, Seattle, and recorder, Dr. J. M. Neff, Spokane. The next meeting will be held in Seattle, December 12 and 13.

Prevention of Infant Mortality.—The fourth annual meeting of the American Association for Study and Prevention of Infant Mortality was held in Washington, D. C., November 14-17, under the presidency of Dr. L. Emmett Holt, New York City. There were sessions on nursing and social work, pediatrics, obstetrics, eugenics, public school education for prevention of infant mortality, and vital and social statistics. The association elects its president a year in advance, and Mr Homer Folks of New York City was elected for 1915. The president for the ensuing year is Dr. J. Whitridge Williams of Baltimore. The following other officers were elected: vice-presidents, Dr. M. J. Rosenau, Boston, and Miss Julia C. Lathrop, Washington; secretary, Dr. Philip Van Ingen, New York; executive secretary, Miss Gertrude Knipp, Baltimore (reelected), and treasurer, Mr. Austin McLanahan of Baltimore.

Congress of Tropical Medicine.—The third biennial congress of the Far Eastern Association of Tropical Medicine was held in Saigon, November 8-15, under the presidency of Dr. Clarac, inspector of the sanitary service in the colonial troops and inspector of sanitary and medical services of Indo-China. The work of the congress was divided in the following groups: (1) protozoology, helminthology; (2) cholera, plague, leprosy, tuberculosis; (3) tropical fevers (including paludism), beriberi, dysentery; (4) obstetrical surgery, infantile diseases; (5) climate, hygiene, sanitary regulations; (6) materia medica, pharmacology; (7) veterinary medicine, epizootics.

Life Insurance Directors Elect.—At the twenty-fourth annual meeting of the Association of Life Insurance Medical Directors of America, held in Philadelphia October 29 and 30, the following officers were elected: president, Dr. Edward K. Root, Hartford, Conn., Aetna Life Insurance Company; vice-president, Dr. William Evelyn Porter, Mutual Life Insurance Company, New York City; secretary, Dr. Faneuil S. Weisse, Mutual Life Insurance Company, New York Gity (reelected); treasurer, Dr. Augustus S. Knight, Metropolitan Life Insurance Company, New York City (reelected).

Tri-State Physicians Meet.—At the thirtieth annual meeting the the Tri-State Medical Association of Mississippi, Arkansas and Tennessee, held in Memphis November 11-13, the following officers were elected: president, Dr. John Darrington, Yazoo City, Miss.; vice-presidents, Drs. William D McCalipp, Yazoo City, Miss., Edward C. McDaniel, Tyronza, Ark., and Hiram B. Everett, Memphis, Tenn.; secretary, Dr. James L. Andrews, Memphis (reelected), and treasurer, Dr. James A. Vaughn, Memphis (reelected). Memphis was selected as the next place of meeting.

Ohio Valley Physicians Meet.—At the fifteenth annual meeting of the Ohio Valley Medical Association held in Evansville November 5 and 6, the following officers were elected: president, Dr. Argus D. Willmoth, Louisville; vice presidents, Dr. E. Otis Smith, Cincinnati, George M. Young, Evansville, and Dr. Joseph Rilus Eastman, Indianapolis, and secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville (reelected). It was decided to hold the 1914 meeting in Evansville.

Colored Physicians Hold Meeting.—At the annual meeting of the National Medical Association held in Nashville recently the following officers were elected: president, Dr. Arthur M.

Brown, Birmingham, Ala.; vice-presidents, J. M. G. Ramsey, Richmond, Va., and E. J. LeBranch, New Orleans; secretary, Dr. Walter G. Alexander, Orange, N. J., and treasurer, Dr. J. R. Levy, Florence, S. C. Raleigh, N. C., was selected as the place of meeting for 1914.

Bequests and Donations.—The following bequests and donations have recently been announced:

Michael Reese Hospital, Chicago, $20,000; Children's Memorial Hospital and Chicago Home for Convalescent Women, each $10,000; St. Luke's, Wesley, Mercy, Presbyterian, German, Englewood and Chicago Lying-in Hospitals, Chicago Visiting Nurses' Association and Home for Destitute Crippled Children, each $5,000, by the will of Edward Morris.

West Jersey Homeopathic Hospital, Camden, $11,000 by the will of the late Catherine C. Warner.

Mission Board Asks Donations of Medical Equipment.—The American Board of Commissioners for Foreign Missions has issued an appeal for surgical instruments of all practical kinds and in good condition, microscopes, sterilizers, etc., which are needed in the medical missions supported by the board in foreign countries. Any such instruments should be sent by parcels post to John G. Hosmer, 14 Beacon Street, Boston, Mass.

Sanatorium Heads to Meet.—The American Sanatorium Association will hold its ninth mid-winter meeting December 6 and 7, at the City of New York Tuberculosis Sanatorium, Otisville, as the guest of the Department of Health of New York, under the presidency of Dr. Vincent Y. Bowditch, Boston. The program includes the following important papers: "Some Desirable Features of a Large Municipal Sanatorium," by Herman M. Biggs, New York City; "Gastro-Intestinal Complications of Tuberculosis," by Dr. Charles W. Mills, Loomis, N. Y., and "Occupations for Afebrile Tuberculous Patients," by Dr. S. A. Knopf, New York City.

Quarantine Regulations for Panama Canal.—Orders have been issued by Colonel Goethals, promulgating the executive order of the President for the administration of the maritime quarantine regulations, to go into effect with the opening of the Panama Canal. These regulations apply to the entire Canal Zone. The bill of health that must be filled out and certified to by the masters of all vessels entering the canal, requires not only a complete description of the vessel, but a certificate as to the source of its food and water supplies, the sanitary history of the officers and crew and of the passengers, the sanitary history of the cargo and effects of those on board, the sanitary condition of the ship and a certification that none on board is ill of or has been exposed within two weeks to yellow fever, cholera, cholerine, small-pox, typhus fever, plague or leprosy.

FOREIGN

Medical Inspection of Schools in Belgium.—The *Gazette Méd. Belge* of October 30 states that legislation is now pending to provide for medical inspection of all schools, public and private, the expense to be borne by the community. The organized profession asks for payment at the rate of 40 cents (2 francs) per pupil, but the question of remuneration has not yet been reached.

Practicing Woman Physician in Berlin Receives Title of Professor.—Dr. Rahel Hirsch, a woman physician in the great Charité Hospital of Berlin, has received the title of professor. This is the first time the title has been bestowed on a practicing woman physician in Germany. Besides Dr. Hirsch, there are only three women professors in Germany; one is professor of philosophy at Bonn and one in the State Musical College. The third is Prof. Lydia Rabinowitsch of Berlin, formerly assistant to Robert Koch. The work of Dr. Hirsch has been published mainly in the *Handbuch der Biochem.* and the *Charité-Ann.* and has dealt with the thyroid and internal secretions and the diseases connected therewith, over thirteen important articles having appeared since 1905. She has been at the Charité since her graduation in 1903, and is now 43 years old.

Latin-American Medical Congress.—The fifth international gathering of physicians from the various Latin-American countries was held at Lima, Peru, the first two weeks in November, with a large attendance. This meeting was at the same time the Sixth Pan-American Medical Congress. The invitation to hold the next meeting in Cuba was accepted. The special feature of the congress was the proof presented that the uta of Peru is due to a species of Leishmania. A report on the research leading up to this was published in THE JOURNAL, Nov. 8, 1913, p. 1713. The *Cronica Medica* of Lima, in honor of the congress, published a long historical review of medicine in Peru from the earliest Spanish invasion to the present time. From it we learn that some of the soldiers of Pizarro's command became affected with a disease which answers the description of Peruvian verruga as we know it now. The university of San Marcos was founded by a decree of the king of Spain in 1551, and the first hospital was founded in the same year. Regulations were passed in 1559 restricting the practice of medicine and surgery to men with proper credentials from Spain and two medical chairs were founded in 1635. The records state that rabies was not known in Peru before 1807.

Dr. Grenfell's Work in Newfoundland and Labrador.—Dr. Grenfell reached St. Johns, N. F., early in October, after a strenuous summer in the northern parts of Labrador. At a meeting at Government House the proposal was made and will be acted on to bind the various associations connected with his work in Newfoundland and Labrador into one common deed of incorporation, with a council of direction representing all. This shall bear the name of the International Grenfell Association and consist of two representatives from Newfoundland, two from New York, two from Boston and two from Canada. It is to meet in St. Johns each year in July and be responsible for the administration and financing of the whole work. Dr. Grenfell gave a summary of the work done in Newfoundland and in Labrador. He said that a hospital was maintained at St. Anthony at a cost of $25,000 a year, to which the Colonial government granted $1,500 yearly. From the first of January of the present year to the end of September there had been 3,160 out-patients and 352 in-patients, in charge of one surgeon and two nurses, with an eye and ear specialist and a dentist. At Forteau, at the end of Belle Isle Strait, on the boundary of the section of Labrador owned by Canada and Newfoundland, there is a small station with a nurse in charge but a medical man will locate there for the winter. This will be a great benefit to the people, as there are numerous small settlements every few miles. There is another hospital further west on the shore of the Gulf of St. Lawrence at Harrington. This is in Canadian territory and the Canadian Association care for it entirely. It is the only place from Quebec to Battle Harbor, a seaboard of several hundred miles, where a doctor resides, and he has calls at times from points hundreds of miles distant. In addition to these hospitals, Dr. Grenfell does an enormous amount of work himself on the hospital-ship *Strathcona* which has now been in service for thirteen years, and which was presented to the mission by Lord Strathcona. This attends to the requirements of 25,000 people on 1,200 fishing boats during five months of the year. At Battle Harbor on the Labrador coast is a hospital which costs annually $6,000. Two doctors and two assistants and four nurses are maintained there. At Indian Harbor, midway up the coast toward Hudson Strait, is still another hospital which costs $4,000 annually for maintenance, with a doctor and assistant and two nurses. The medical men at these hospitals are volunteers.

CANADA

Army Medical School.—An army medical school has been established at Ottawa in connection with the Central Laboratory of Hygiene. Military medical officers will be trained in laboratory work and army sanitation.

Proposed Amendment to Medical Act.—The government of Alberta is considering an amendment to the medical act of that province in order to induce physicians to locate in the more thinly settled portions thereof. By it any medical men entering the province who are qualified to take the prescribed examinations will be granted an interim license, providing they are prepared to locate at least twenty miles from the nearest physician. When the examinations arrive, if candidates fail in one or more subjects they will have this interim license extended for six months in order to prepare for the subjects they failed to pass on.

Hospital News.—The ratepayers of Winnipeg recently refused to grant $275,000 for the purposes of the Winnipeg General Hospital. As less than three thousand persons voted out of a possible eighteen thousand the by-law will be resubmitted at the annual municipal elections in December.——Glace Bay, Cape Breton, is to have a new hospital at a cost of $80,000.——Fredericton, N. B., will enlarge Victoria Hospital.——Plans have been prepared for a tuberculosis hospital at St. John, N. B.——Walkerville, Ont., will erect a new hospital of fifty beds.——To complete the new Notre Dame Hospital in Montreal $750,000 is required.

University News.—Dr. John Stewart has been appointed professor of surgery in the Halifax Medical College, succeeding Dr. Norman McKay, resigned. In connection with this

medical school the provincial government of Nova Scotia has just completed a new pathologic building; and a new building for the departments of chemistry and physics of Dalhousie University is being erected.——The Western University, London, Ont., requires a head for its physiological department. Dr. Paul S. McKibbin, for several years teacher in the Department of Anatomy in the University of Chicago, has been appointed professor of anatomy there.——The faculty of Queen's University, Kingston, has established three teaching fellowships, in anatomy, pathology and physiology.——At McGill University, Montreal, Dr. A. C. Geddes has succeeded Dr. Francis J. Shepherd as professor of anatomy. On account of the death of Dr. N. H. Alcock the department of physiology is without a head but the work is being carried on by the first assistant, Dr. Miller.

Personal.—Dr. Orton I. Grain, Selkirk, Man., member of the Manitoba Legislature, has resigned his seat in favor of the Hon. Dr. W. H. Montague of Winnipeg, who has been selected for minister of public works in the government of Manitoba. Dr. Grain has been appointed superintendent of Manitoba Indian Reserves.——Dr. Alexander J. Macauley has been appointed medical officer of health of Brockville, Ont.——Dr. Zephyr Rheaume has been appointed to the chair of experimental surgery just created at Laval University, Montreal.——Drs. Robert J. Blanchard and John S. Gray of Winnipeg were recently tendered a complimentary dinner by the medical staff of the general hospital of that city. Both medical men are retiring from active service after serving for a quarter of a century. Dr. James R. Jones presented Dr. Gray with a silver tea service and Dr. James W. Good made a presentation to Dr. Blanchard of a gold watch. Dr. Gray has been registrar of the College of Physicians and Surgeons for many years and Dr. Blanchard was president of the Canadian Medical Association in 1909. Dr. Gordon Bell presided at the function.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Nov. 1, 1913.

A Tragedy of the Panel

An unfortunate event has occurred at the town of Wisbech in connection with the working of the insurance act. All the local physicians except two refused to work the act, and as two were not sufficient for the number of the insured persons a physician was imported for the purpose. This was resented by the local profession, who refused to meet him in consultation and boycotted him in every way. Feeling ran so high that he received three hundred anonymous abusive letters and post-cards, fifty on the day he arrived. His brass plate was repeatedly pulled down and defaced. He was repeatedly called on the telephone at night to distant cases which did not exist. But he became very popular with his patients and his practice became so large that he was overworked. Matters came to a crisis when at the instance of the president of the local branch of the British Medical Association he was arrested on the charge of criminal libel for sending an anonymous post-card. He emphatically denied the charge and bail was given. A few days later he did not get up at the usual hour and was found in his bed comatose. He died, evidently from narcotic poisoning; but whether he took the drug with suicidal intent or merely as a soporific has not yet been revealed. Public feeling in the town was aroused to an extraordinary extent. The people regarded his death as the result of persecution by the other physicians. A mass indignation meeting was held and after this crowds of workmen marched in procession to the house of the president of the local branch of the British Medical Association yelling and threatening violence if he showed his face. Stones were thrown at the windows and doors with destructive effect, and as each one crashed through the glass shouts of delight went up. After smashing all the windows and the front door the crowd marched to the house of another physician and smashed his windows. Extra police have had to be drafted into the town. Later a second attack was made on the house of the president, who telephoned for assistance from the police of the neighboring towns. All the time considerable damage was being done to his furniture. A daring attempt was made to rush his front door, which was barricaded, and shouts of "help him out! help him out!" came from the crowd. At this juncture the mayor arrived and attempted to read the riot act, but the attitude of the crowd was so threatening that he had to depart. Not until police reenforcements arrived could order be restored. The latest news is that the president has left the town for an unknown destination.

The Falling Birth-Rate

An organization termed the National Council of Public Morals has appointed a birth-rate commission to report on the declining birth-rate. The chairman of the commission is Bishop Boyd Carpenter, and the members are composed of well-known clergymen, physicians and social workers. The inquiry is to be made in four directions: First, the extent and character of the decline are to be considered under such headings as the present British birth-rate and infantile mortality, general and classified according to income, occupation, province and county, urban and rural, and religion (if possible); statistics showing the proportion of sterile to total marriages (to find out whether smaller families or total childlessness is the cause of the fall), and foreign statistics showing the extent of declining birth-rates, special attention being paid to France and the Jews. Secondly, the alleged causes of the decline are to be investigated under the headings of physiologic causes (for example, the effect of town life, etc., on lateness of marriage, fertility and number of marriages), prudential motives and methods of restraint (moral, mechanical and chemical). Thirdly, the effects of the decline of the birth-rate, whether due to natural or to artificial causes, are to be searched out, under the headings of effects on the children, on the man and woman, on married persons and on home life. Fourthly, the economic and national aspects are to be dealt with, and the commission is to consider, for instance, the alleged results of a rapid increase of population in a country in which the land is fully cultivated, of a permanent surplus of workers on the condition of the working class (in the matter of unemployment, overcrowding, etc.) in the case of a declining or stationary population, and the alleged national danger of a disproportionate increase in other nations.

A discussion on the subject has taken place at Edinburgh under the auspices of the Scottish Council of Public Morals. Mr. James Marchant, the secretary of the National Council of Public Morals, read a paper. Among the explanations suggested by him for the fall in the birth-rate were the high standard of living, the love of pleasure and the higher education of women. A serious question was whether or not behind the lower birth-rate there was a lower degree of fertility. If if could be proved that only the weak and defective were ceasing to increase, there would be little cause for complaint; but apparently the fall ran through all classes. Dr. J. W. Ballantyne opened the discussion. A tremendous change had occurred, he said, in the vital statistics in the country, which was represented by the fall of the birth-rate from 35 to 25 per thousand. There was no doubt that the human race had begun to experiment on its reproduction, very much as it had in the past experimented on its digestion, and no one could foretell the ultimate result; but one immediate and welcome result had been the appreciation in the value of infant life which had followed the decrease in the number born. By this he thought it was possible to maintain an equilibrium so far as the number of lives in the nation was concerned:

A Color Problem in India

Some time ago it was stated in a letter to THE JOURNAL that the government was adopting a new policy with regard to medical practice in India. Almost all the important civil medical appointments were held by the superior officers of the medical corps of the Indian Army, who are white men. It has been decided to throw these appointments open to the civil practitioners of India, who are mostly natives. This policy is now criticized by a society termed the European Defense Association, which has addressed a memorandum to the government on the subject. They point out that the European officials scattered all over India are seriously affected by the change. Hitherto they have been able to obtain skilled European medical aid for themselves, their wives and their families. The objection of European women to native medical attendants is well known. Moreover, the medical qualifications of the native physicians, at present at any rate, are of a lower kind than those of the European physicians.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Nov. 7, 1913.

Death of Professor Jaboulay

A terrible railroad accident has occurred at Melun near Paris. Dr. Jaboulay, professor of clinical surgery at the Faculté de médecine de Lyon, was in one of two trains which crashed together. No news has been received from him, and all the

evidence seems to indicate that his remains are among the débris which covers the scene of the catastrophe. Dr. Patel has been commissioned by the dean and professors of the Faculté de médecine de Lyon to search for and identify Dr. Jaboulay's body. Dr. Jaboulay was born in Saint Genis-Laval, July 3, 1860, and was appointed professor of clinical surgery in 1902.

Prof. Charles Richet Recipient of the Nobel Prize

The Nobel prize for 1913 for medical science has been awarded to Dr. Charles Richet, professor of physiology at the Faculté de Médecine de Paris. He is the son of the celebrated surgeon, Alfred Richet, and was born in 1850. In 1887 he succeeded Béclard in the chair of physiology. Among his works the most notable is the discovery of anaphylaxis, for which the recent International Medical Congress at London awarded him the prize of Moscow. Professor Richet will probably be a candidate for the vacant seat in the Académie des Sciences left vacant in the section of medicine by the death of Dr. Lucas-Championnière.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 31, 1913.

Personal

Professor Steyrer of Greifswald has been appointed director of the medical clinic at Innsbruck.

Kaiser Wilhelm Institute for Experimental Therapy

October 28 the Kaiser Wilhelm Institute, which was founded by the kaiser and is to be conducted under his protection, was opened in the presence of the royal family. The state provided the ground, and the Kaiser Wilhelm fund the material for the building. The cost of the institute was about 500,000 marks ($125,000). In the main building is the serologic department, which is conducted by the director of the institute, Professor Wassermann, and the department of chemistry, headed by Professor Neuberg, formerly assistant of Professor Salkowski. There is a room for dangerous explosives and also a special room for a large centrifuge are in the basement. The lid of the centrifuge is of glass in order that should there be a break in the centrifuge the pieces may easily be thrown outside. A separate department is available in which animals may be observed as to their health before use. This building is available for large animals such as horses and cows. Besides this there is a larger building of two stories in which are conducted experiments on animals. In front of the animal stables there are exercising-yards for the animals separate from the stables mentioned, and in another department are a kitchen for preparing food, a room for drawing blood from horses in order to obtain serum, and two complete aseptic operating-rooms for larger animals.

Marriages

RANDOLPH MACON GRIMM, M. D., U. S. P. H. S., Savannah, Ga., to Miss Heloise Percifull of Nesting, Va., November 5.

JOSEPH REDMOND CONDON, M.D., Des Moines, Ia., to Miss Margaret Lauretta Byrne of Chicago, November 12.

JOSEPH ABEL THIBODEAU, M.D., Madison, Me., to Miss Arthemese Gauthier of Rumford, Me., November 2.

OLIVE VIOLET BRASIER, M.D., Butte, Mont., and Harney M. Cardua of Washington, D. C., November 2.

REUBEN SPENCER SIMPSON, M.D., to Miss Tusanelda Nusbickel, both of Lyons, N. Y., November 4.

IRA DAVID BAXTER, M.D., Spencerville, Ohio, to Miss Sue Wager of Delphos, Ohio, November 4.

JAMES AUGUSTUS LONGO, M.D., to Miss Josephine McMahon, both of Sheppton, Pa., November 5.

OSCAR CLEFF, M.D., Chicago, to Miss Zolier Jacqueline Parsons of Mansfield, La., November 5.

ROBERT H. TOWNSLEY, M.D., Wagner, S. Dak., to Miss Maude E. Beverly of Sioux City, Ia.

URIAL MCREYNOLDS, M.D., to Miss Ruby Murphy, both of Knox City, Mo., October 30.

GILBERT H. WYNEKOOP, M.D., to Miss Lucile Megahan, both of Chicago, November 20.

EDWARD JAMES MONAHAN, M.D., Revere, Mass., to Miss Anna Olive Thompson, of Prince Edward Island, at Milton, Mass., November 11.

Deaths

Ira Kilbourn Gardner, M.D. University of Michigan, Ann Arbor, 1870; a Fellow of the American Medical Association; vice-president of the National Association of Railway Surgeons; chairman of the Board of Councilors of the Iowa State Medical Society, and secretary-treasurer of the Chickasaw County Medical Society; local surgeon of the St. Paul system at New Hampton, Ia.; president of the Board of Education; died at his home in New Hampton, November 4, from cerebral hemorrhage, aged 67.

Alfred J. Pedlar, M.D. Cooper Medical College, San Francisco, 1877; in 1877 chairman of the Board of City Trustees and physician of Fresno County, and a member of the City Board of Health; for several years acting assistant surgeon U. S. Army with service during the Spanish-American War as post surgeon at the Presidio of San Francisco; from 1877 to 1907 a practitioner of Fresno and for two terms state senator; died at his home in Alameda, Cal., from asthma, aged 59.

Thomas Wistar, M.D. University of Pennsylvania, Philadelphia, 1859; for thirty-nine years chief medical inspector and medical director of the Provident Life and Trust Company, Philadelphia; for several years secretary of the Philadelphia Dispensary; a member of the staff of the Wills Eye Hospital, and a director of the Wistar Institute of Anatomy; died at his home in Philadelphia, September 27, from heart disease, aged 77.

John Erskine Taylor, M.D. Medical College of Philadelphia, 1890; a Fellow of the American Medical Association; formerly president of the Venango County (Pa.) Medical Society; a member of the American Association for the Advancement of Science, the American Association of Life Insurance Examining Surgeons, and the Oil City Medical Club; died at his home in Nickelville, October 30, from pulmonary tuberculosis, aged 53.

Henry W. Nelson, M.D. Homeopathic Hospital College, Cleveland, Ohio, 1865; College of Physicians and Surgeons, Keokuk, Ia., 1876; Jefferson Medical College, 1880; at one time secretary of the Jefferson County (Ohio) Medical Society; for nearly fifty years a practitioner of Steubenville; died at the home of his daughter in Milwaukee, September 25, from the effects of an overdose of morphin, aged 76.

Richard French Stone, M.D. University of Pennsylvania, Philadelphia, 1865; formerly surgeon general of Indiana National Guard, professor of materia medica, therapeutics and clinical medicine in the Central College of Physicians and Surgeons, Indianapolis, and president of the Marion County Medical Society; died in his office in Irvington, Indianapolis, October 3, from accidental gas asphyxiation, aged 69.

Aria Louis Derdiger, M.D. College of Physicians and Surgeons, Chicago, 1903; a Fellow of the American Medical Association; assistant in bacteriology in his alma mater; professor of psychiatry and ophthalmology in the Chicago College of Medicine and Surgery; president of the Chicago Eye, Ear, Nose, and Throat Infirmary; died at his home in Chicago, November 12, aged 47.

Walter J. Pennell, M.D. University of Vermont, Burlington, 1891; a Fellow of the American Medical Association and a specialist on diseases of the eye, ear, nose and throat; ophthalmic and aural surgeon to the Central Maine General Hospital; oculist and aurist to Bates College; died at his home in Auburn, October 29, from cerebral hemorrhage, aged 50.

James Seaton Wise, M.D. Medical College of Ohio, Cincinnati, 1863; L. F. P. S. Glasgow, and L. R. C. P. Edinburgh, 1868; a Confederate veteran; for several years a surgeon on transatlantic steamers; for two terms coroner of Kenton County, Kentucky; died in his home in Covington, October 12, from cerebral hemorrhage, aged 72.

John Sidney Warren, M.D. Jefferson Medical College, 1866; assistant surgeon of the Eighth U. S. Colored Horse Artillery during the Civil War; of New York City; a member of the New York Academy of Medicine, and for fifteen years treasurer of the New York County Medical Society; died in Atlantic City, N. J., July 18, aged 72.

Joseph William Posthauer, M.D. College of Physicians and Surgeons, New York City, 1895; of Boston; formerly associate professor of physiology in Milwaukee Medical College; for many years a practitioner of Boston and later of Auburndale, Mass.; died at his home in Burlington, Vt., September 22, from pleurisy, aged 40.

Edward H. Higbee, M.D. Missouri Medical College, St. Louis, 1884; a member of the Illinois Medical Society; one of the founders of the Polyclinic Hospital, St. Louis; surgeon for the Chicago and Alton Railroad at Roodhouse, Ill., and alderman for several years; died at his home, November 3, from pneumonia, aged 66.

William Theodore Wenzel, M.D. Cooper Medical College, San Francisco, 1876; one of the founders of the San Francisco College of Pharmacy and professor of chemistry for many years; chemist to the United States Appraisers' Stores, San Francisco for fourteen years; died at his home in that city, July 31, aged 84.

Joseph D. Crum, M.D. Eclectic Medical Institute, Cincinnati, 1881; a member of the Michigan State Medical Society; for thirty years a practitioner of Owosso, Mich., and for several terms a member of the board of education; died at the home of his son in Kalamazoo, November 1, from nephritis, aged 60.

Amy Hamm Brush Clark, M.D. Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1884; a member of the Medical Society of the State of Pennsylvania; a member of the staff of the Samaritan Hospital; died at her home in Philadelphia, November 4, aged 54.

Joseph Augustus Stites, M.D. Bellevue Hospital Medical College, 1875; for nine years surgeon of the Netherlands American Steam Navigation Company, and later health officer and medical inspector in Springfield, N. J.; died in his home in that place, October 23, from cerebral hemorrhage, aged 61.

James D. Van Derveer, M.D. College of Physicians and Surgeons, New York City, 1866; for several years commissioner of deeds at North Branch, N. J., and prior to that time a practitioner of Liberty Corner, N. J.; died at his home in North Branch, July 29, from heart disease, aged 75.

George W. Jenkins, M.D. New York University, New York City, 1851; a member of the State Medical Society of Wisconsin; for many years local surgeon of the Chicago, Milwaukee and St. Paul Railway at Kilbourn, Wis.; died at his home, November 3, from senile debility, aged 89.

Alexis Marcy Leon, M.D. College of Physicians and Surgeons, New York City, 1878; a Fellow of the American Medical Association; visiting physician to St. Francis' Hospital, New York City; died suddenly at his home in New York City, November 2, from heart disease, aged 56.

Orbun T. Moore, M.D. Washington University, St. Louis, 1875; for many years a practitioner of St. Louis and formerly chief diagnostician of the St. Louis Board of Health, who recently moved to Augusta, Mo.; died in St. Charles, Mo., October 22, from heart disease, aged 64.

Arthur F. Niedermeier, M.D. University of Pennsylvania, Philadelphia, 1900; chief medical examiner and surgeon at the Pennsylvania Railroad Terminal, New York City; died in Mercer Hospital, Trenton, N. J., October 23, from septicemia due to an operation wound, aged 37.

Robert Henry Reynolds, M.D., Eclectic Medical Institute Cincinnati, 1872; for forty years a practitioner of Huron County, Ohio; died at his home in Greenwich, September 20, from cerebral hemorrhage, aged 67.

Henry Nathan Longfellow, M.D. Harvard Medical School, 1904; a Fellow of the American Medical Association, and a member of the dermatological staff of Mt. Sinai Hospital, Boston; died at his old home in Georgetown, Mass., October 31, from Hodgkin's disease, aged 42.

Mordecai M. McDowell, M.D. Hospital College of Medicine, Louisville, Ky., 1878; a member of the Indiana State Medical Association; at one time sheriff of Knox County, Ind., and a member of the state senate; died at his home in Vincennes, November 9, aged 68.

William A. Holloway, M.D. University of Alabama, Mobile, 1889; a Fellow of the American Medical Association and an esteemed practitioner of Goodwater, Ala.; was assaulted November 4 and died at his home a few hours later, aged 46.

William H. Schenk, M.D. New York University, New York City, 1848; for many years a practitioner of Australia and later of his native place, Flemington, N. J.; died September 27, aged 87, in the house in which he was born.

G. A. Niedermeyer, M.D. Medical College of Ohio, Cincinnati, 1861; assistant surgeon of the Twenty-Seventh Colored U. S. Volunteer Infantry during the Civil War; died at his home in Cincinnati, October 20, aged 76.

Ray McKennedy Van Cleave, M.D. Indiana University School of Medicine, 1911; of Muncie, Ind.; was found dead in a hotel in Terre Haute, Ind., September 7, from the effects of poison believed to have been self-administered with suicidal intent, aged 28.

Samuel Matthew Crawford Howell, M.D. Atlanta, (Ga.) Medical College, 1891; a Fellow of the American Medical Association; president of the First National Bank of Midland City, Ala.; died at his home, October 30, from cerebral hemorrhage, aged 44.

William Wright Markoe, M.D. Yale University, New Haven, Conn., 1898; a Fellow of the American Medical Association; acting assistant surgeon U. S. P. H. S., with recent station at Ft. Stanton, N. Mex.; died in Charleston, N. H., October 19, aged 39.

David R. Springsteen (license, Iowa, years of practice, 1886); a veteran of the Civil War, and for more than thirty years a practitioner of Weldon and Decatur City; died at his home in the latter place, September 23, from heart disease, aged 69.

Samuel Adams Robinson, M.D. Homeopathic Hospital College, Cleveland, 1858; formerly of New York and Portland, Ore.; well known as a public welfare worker; died in his apartment in Washington, D. C., October 9, from heart disease, aged 75.

August Schumacher, M.D. Medical College of Ohio, Cincinnati, Ohio, 1897, once health officer of Hamilton, Ohio, and for four years coroner of Butler County; died at his home in Hamilton, October 16, from aneurysm of the aorta, aged 39.

Lindsay P. O'Neal, M.D. Washington University, Baltimore, Md., 1865; surgeon of volunteers during the Civil War; for several terms a member of the common council of Mechanicsburg, Pa.; died at his home, September 18, aged 74.

Samuel Miller Mosgrove, M.D. Miami Medical College, Cincinnati, 1872; Bellevue Hospital Medical College, 1873; formerly a member of the Ohio State Senate; died at his home in Urbana, October 22, aged 62.

N. H. Palmer, M.D. University of Arkansas, Little Rock, 1911; formerly of Crossett and Portland, Ark.; died in Delta, Colo., September 20, from tuberculosis of the lungs, aged 31.

Absalom Pearson, M.D. Cincinnati College of Medicine and Surgery, 1880; health officer of New Weston, Ohio; died at his home, August 6, from pulmonary hemorrhage, aged 75.

DeWitt H. Thomas, M.D. University of Tennessee, Nashville, 1887; local surgeon for the Illinois Central Railroad at Sturgis, Miss.; died at his home in that place, October 11.

John Nelson Merrill, M.D. University of Michigan, Ann Arbor, 1869; a member of the Maine Medical Association; died at his home in Skowhegan, October 2, aged 71.

James H. Snowden (license, Arkansas, 1903); for many years an eclectic practitioner of Conway County; died at his home in Center Ridge, September 30, aged 65.

Philip D. Reefy, M.D. Eclectic Medical Institute, Cincinnati, 1869; Western Reserve University, Cleveland, 1871; died at his home in Elyria, Ohio, October 7, aged 69.

Andrew W. Meyers, M.D. University of Tennessee, Nashville, 1885; died at his home in Scottsville, Ky., October 13, from typhoid fever, aged 57.

Dennis M. Smith, M.D. Albany (N. Y.) Medical College, 1888; examiner in lunacy; died at his home in Cambridge, N. Y., October 5, aged 66.

Frank A. Nevers, M.D. Missouri Medical College, St. Louis, 1874; died at his home in Houlton, Me., August 3, from arteriosclerosis, aged 63.

William Harvey Kincaid, M.D. Memphis Hospital College, 1900; died at his home in McKinney, Tex., September 17, from typhoid fever, aged 37.

Thomas W. Moore, M.D. Tulane University, New Orleans, 1894; died in his office in Lagrange, Tex., September 28, from heart disease, aged 42.

Charles H. Shadle, M.D. University of Pennsylvania, Philadelphia, 1894; of Templeton, Pa.; died in Springboro, from pneumonia, aged 44.

Edward Arthur Wheaton, M.D. Ohio Wesleyan University, Cleveland, 1897; died at his home in Mansfield, Ohio, September 25, aged 48.

Omar E. Newman, M.D. Western Reserve University, Cleveland, 1878; died at his home in Penn Yan, N. Y., October 7, aged 58.

Arthur D. Raines, M.D. St. Louis College of Physicians and Surgeons, 1898; died in his office in St. Louis from a gunshot wound of the head, self-inflicted, it is believed with suicidal intent, September 29, aged 38.

John M. Rader, M.D. St. Louis College of Physicians and Surgeons, 1893; formerly deputy coroner of St. Louis County; died at his home in St. Louis, October 22, from cerebral hemorrhage, aged 55.

Nathan J. Saunders, M.D. College of Physicians and Surgeons, Kansas City, Kan., 1890; a Fellow of the American Medical Association; died at his home in Glen Elder, Kan., October 25, aged 52.

Ray DeWitt Robinson, M.D. Cleveland Homeopathic Medical College, 1903; of Akron, Ohio; died in Grace Hospital, Cleveland, October 7, two days after an operation for appendicitis, aged 44.

Harry Luther Towner, M.D. Chicago Homeopathic Medical College, 1879; for many years a practitioner of Sayre, Pa.; died at the home of his daughter in New York City, October 5, aged 63.

Robert Wadsworth, M.D. Hahnemann Medical College, Philadelphia, 1876; of Rochester, N. Y.; while making a professional call in that city October 17, died from angina pectoris, aged 63.

T. F. Wynn, M.D. Memphis Hospital Medical College, 1893; of Denison, Tex.; died in that city, July 20, two months after a fall in which he struck his head on a cattle-guard, aged 51.

L. V. White, M.D. Southern Medical College, Atlanta, 1886; for more than twenty years a practitioner of Brewster County, Texas; died at his home in Marathon, September 29.

Henry Westerman (license, Minnesota, 1887); for more than half a century a practitioner; died at his home in Mankato, October 14, from disease of the stomach, aged 86.

James White, M.D. University of Toronto, Ont., 1875; first president of the Hamilton Medical Association; died at his home in Hamilton, Ont., August 17, aged 55.

Stephen G. Warren, M.D. Cleveland University of Medicine and Surgery, 1865; died at his home in Attica, N. Y., October 17, from cerebral hemorrhage, aged 73.

William B. Zineman, M.D. Baltimore University, 1896; a well-known optician of Philadelphia; died at his home October 15, after a long illness, aged 49.

George Victor Winter, M.D. Northwestern University Medical School, Chicago, 1911; of Albany, Minn.; died in St. Paul, July 25, from appendicitis, aged 33.

William W. Watkins, M.D. Tulane University, New Orleans, 1872; a wealthy banker and planter of Aberdeen, Miss.; died at his home, September 30, aged 63.

J. M. Condon, M.D. Medical College of Ohio, Cincinnati, 1881; of Scranton, Pa.; died in the Scranton State Hospital, September 14, aged 56.

John Savage Wade, M.D. University of Nashville, Tenn., 1878; died at his home in Weston, Tex.; August 7, from locomotor ataxia, aged 65.

Edward Everett Gilbert, M.D. University of Louisville, Ky., 1886; of Haskell, Tex.; died about October 8, from cerebral hemorrhage, aged 53.

George Batchelder Langmaid, M.D. Boston University School of Medicine, 1877; died at his home in East Greenwich, R. I., September 14, aged 65.

Lucian Beauregard Horton, M.D. Louisville (Ky.) Medical College, 1890; died at his home in Gate City, Va., September 26, aged 52.

Frederick R. W. Warren, M.D. Queen's University, Kingston, Ont., 1905; of Assiniboia, Sask., died September 1, aged 36.

Aaron Mason Larkin, M.D. University of Vermont, Burlington, 1868; died at his home in Norwood, N. Y., August 21, aged 71.

Alfred Helton (license, years of practice, Indiana, 1902); died at his home in Paynetown, August 7, from heart disease, aged 62.

Robert M. McGary, M.D. Jefferson Medical College, 1884; died suddenly at his home in Mechanicsburg, Pa., September 1.

Robert C. Mayes, M.D. University of Lousiville, Ky., 1872; died at his home in Brownwood, Tex., October 19, aged 76.

William L. Garratt (license, years of practice, Michigan, 1000); died at his home in Watervliet, October 10.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BERLEDETS

Another Fraudulent and Dangerous Obesity Cure

So long as many well-to-do women continue to eat much and exercise little, so long will they be likely to become obese. So long, also, as the present style in women's fashions calls for the svelt figure, so long will the exploiters of fraudulent "obesity cures" become rich. Every "fat cure" of this type emphasizes in its advertisements two things: first, that those who use it need not diet; second, that they need not exercise. Berledet tablets are one of the latest fake cures for obesity, and they run true to form in that they are sold under the claim that neither dieting nor exercise is necessary to reduce weight when Berledets are used.

Several inquiries have been received regarding the product; one, in particular, came from a layman of more than average

How to Get Thin

Without Dieting. A Sure, Harmless Way to End Fat

Here is a new method which is now employed by the safest physicians we know. A way that is utterly harmless, easy and pleasant, and so certain that we guarantee it.

It was discovered by accident. A mild antiferment, employed to some bowel troubles, was found by physicians to invariably cause users to grow thin.

Many clinical tests were made to find out the reason. And all seem to prove that this anti-ferment simply stops fat from digesting. It seems to act on the ferments which digest fat-forming food, and so cause that food to pass out undigested.

The system must have fat. When we stop fat digestion the body is forced to feed on the stored-up tissue. This reduction comes about just as naturally as it might come through semi-starvation.

Berledets

This anti-ferment is now put up for this purpose in tablets called Berledets. Eat what you wish, but after each meal take one of these Berledet tablets.

Nothing else is required. Dieting is unnecessary. All that is necessary is to stop the digestion of all that forms fat. Then the body is forced to consume the fat it has had away.

Berledets don't subject the system. They utilize actions seems to be on food. And hundreds of tests made by able physicians prove, also the action brings no ill effects.

The only caution is, don't get too thin. Stop the treatment when you reach normal weight. Then, in 24 hours, the system again begins to digest the fat.

Free if It Fails

Berledets form the only harmless way to end fat without most rigid dieting. Their results are the same as from dieting.

We have tested this treatment through physicians, in countless difficult cases. Cases in which numerous other methods have entirely failed. The results seem to be invariable.

Now we place a warrant in every box. If three boxes fail to prove effective, your druggist will return your $3. Then we ask you to test this harmless treatment entirely at our risk.

Do this as justice to yourself. It seems to be certain. It is pleasant and easy and it has no ill effects. A chemist's certificate goes in each box to prove that it cannot harm.

Try it for your own sake, then tell the results to your friends.

Berledets cost $1 per box at druggists.

A typical Berledets advertisement.

intelligence, who complained that his wife after taking this stuff had become seriously ill and had to be put under a physician's care. Here are some of the advertised claims:

"Eat what you wish, but after each meal take one of these Berledet tablets. Nothing else is required. Dieting is unnecessary."

"Berledets form the only harmless way to end fat without the most rigid dieting."

"A chemist's certificate comes in each box to prove that it cannot harm."

"In our estimation, this discovery has settled forever the problem of obesity."

Like every fraudulent obesity cure, the claims made for the stuff before you purchase it differ from those made in the instructions that come with the dollar package. While the advertisement specifically states that Berledets will make you thin "without dieting," the instructions with the preparation urge:

"Moderation in the use of fat-forming food."

"Eat sparingly of rich gravies, pastries, butter and fresh breads. Also of fried foods."

While, too, the newspaper advertisements intimate that no exercise is necessary to reduce obesity if Berledets are used —"nothing else is required"—yet, after the dollar has been paid, the purchaser finds that it is necessary to:

"Exercise freely in the open air."

The chemist's report referred to in the advertising matter sent out with the package, reads as follows:

CHICAGO, ILL., March 28, 1913.

Gentlemen:—I wish to report that I have made a thorough and most exhaustive analysis of—BERLEDETS—and find that they do not contain any Thyroid, or any other harmful substances. The ingredients of which BERDELETS are composed are of the highest standard of purity, absolutely harmless, but are very effective in prohibiting fat absorption. Yours very truly,

(Signed) H. M. DEAVITT, Formerly Chemist Illinois State Board of Pharmacy.

This "certificate" will, of course, mean nothing to scientific men, except to indicate its utterly unscientific nature and to show the lack of scientific standing of the man who issued it. It will be noticed that Deavitt signs himself "Formerly Chemist Illinois State Board of Pharmacy." The secretary of the Board of Pharmacy of the State of Illinois writes, in reply to our inquiry:

"H. M. Deavitt has no authority whatever to sign himself as 'Formerly Chemist of the Illinois State Board of Pharmacy.' The only connection he ever had with this department of the state government was a number of years ago when we employed him to do some analytical work in Chicago, for which we had to pay him an outrageous fee."

Berledets were analyzed in the Association's laboratory, and the chemist's report is as follows:

"One original sealed package of 'Berledets' was received for analysis in the American Medical Association's chemical laboratory. The pasteboard box bore the following inscription:

"'Berledets: Berledite Tablets, Mild, Simple, Beneficial. For Reducing Fat. Price $1.00. The Berledite Co., Chicago.

"'Directions: Chew one tablet after each meal or swallow tablet whole, drinking 1-4 glass of water with same.'

"The package contained white tablets having an odor of cinnamon and peppermint. The tablets (powdered) had a taste at first slightly sweet, becoming acid. The average weight of a tablet was nearly one gram (15 grains).

"On treating some of the powdered tablets with cold water, the main portion went into solution; the insoluble portion dissolved on boiling with hydrochloric acid. The aqueous extract was acid to litmus, but neutral to methyl orange. Iodin compounds such as the alkali iodids or thyroid preparations could not be detected. The absence, at least in medicinal quantities, of the following cathartic drugs was demonstrated: aloes, buckthorn, cascara, gamboge, podophyllum, colocynth, resin jalap, rhubarb, senna, phenolphthalein and the salines.

"The tablets consisted essentially of boric acid, corn starch, milk sugar, water, flavoring substances and a trace of an ammonium compound. Quantitative determinations indicated the following composition:

Boric Acid	59.4 per cent.
Corn Starch (hydrous)	20.1 per cent.
Milk Sugar (hydrous)	12.6 per cent.
Water, flavoring extracts, etc. (by difference)	7.9 per cent.
	100.0 per cent."

Thus, according to the analysis, we have tablets of boric acid, corn starch and milk sugar, sold as a cure for obesity. Persons taking Berledets get about 9 grains of boric acid in each tablet. That the use of these tablets will reduce obesity is true only in those instances in which the boric acid so seriously impairs digestion that the patient loses weight from the resulting illness. That a preparation of this sort can be sold indiscriminately as a "beneficial compound" and "utterly harmless" is but one more commentary on the ease with which the public may be both injured and defrauded with impunity.

MEDICAL JOURNAL ADVERTISING

A Physician Places the Responsibility for Fraudulent Advertising Where it Belongs

"*To the Editor:*—THE JOURNAL has had much to say in recent years regarding the ethics, or lack of same, in advertising matter exploited by its contemporaries. It has been criticized by many for the stringency of its attack; it has been criticized by very few because it did not go far enough. Is it not about time to get to the root of the matter?

"In the last number, dissatisfaction is expressed with the advertising policy of the *Medical Times*. Nothing finer! Go to it! But is the method of attack right? I have before me a sample copy of the *American Journal of Surgery*. Among other articles is one on diseases of joints and the bone marrow by a man very favorably known in Denver. He was "ethical" enough to be accorded a place on the program in the Section on Medicine at Minneapolis. Another contributor from Baltimore remarks that he took a patient to the University Hospital. Can it be possible that Johns Hopkins is admitting men to its wards and clinics that are below par in professional morals? Another article appears from a well-known orthopedic man of Washington, D. C. Personally, I see very little to commend in the advertising columns of the *American Journal of Surgery*.

"I, who confess to a state bordering on youth, may be very wrong; but I believe that the trouble will be solved only when men who claim to have any professional distinction refuse to contribute to journals whose pages are not clean from cover to cover. Pardon the presumption, Mr. Editor, but were you ever tempted to print anything like this:

"'Last week's issue of the *New York Medical Squall* contains an article on "Duodenal Ulcer" by John Doe, the well-known Chicago surgeon. Dr. Doe doubtless knows as well as any one the disreputable character of the *Squall's* advertising matter, but like most of our great men, is unable to restrain his appetite for journalistic publicity.'

"Physicians read medical journals because they contain literature that is worth while. Jump on your erring editorial brethren, Mr. Editor, but please remember that the problem of eliminating bogus advertisements will be solved when the so-called leaders of our profession show enough manhood to refuse literary support to publications whose columns are in disrepute. While castigating the little sinner, please don't let the big sinner go scot free.

"CLINTON E. HARRIS, M.D., Grinnell, Iowa."

Dr. Harris sums up the situation correctly. No small degree of responsibility rests on the prominent members of the medical profession who lend their support either as subscribers for or contributors to those medical journals whose advertising pages are a stench in the nostrils of thinking physicians. Dr. Harris asks why THE JOURNAL does not condemn the advertising columns of the *American Journal of Surgery*. THE JOURNAL has done so more than once and in no uncertain terms, both in the Propaganda department and editorially. At one time it said:

"In circular letters and in an editorial announcement in its December issue, the *American Journal of Surgery* 'features'—to use a newspaper term—some of the contributors to its January issue. The list comprises men who hold, or have held, high offices in the American Medical Association. Presidents, vice-presidents, chairmen, secretaries and members of sections of the Association—these are some of the men whose names appear as contributors to this nostrum-promoting publication. Is it any wonder that the proprietors of the *American Journal of Surgery* assume an attitude of indifference to the class of proprietary preparations which they admit to the pages of their publication?"

What was the result of THE JOURNAL, thus directing the attention of its readers to the *American Journal of Surgery*? In the next issue of the *American Journal of Surgery* appeared a seven-column editorial tirade, entitled "An Unwarranted Attack on the President and Other Eminent Members of the American Medical Association and on the Leading Medical Journals of the Country."

On many and various occasions has THE JOURNAL called attention to the very evils that Dr. Harris deplores, and for the benefit of those who care to look up the matter these references to some of the articles are appended:

"The Mote and the Beam," editorial, Nov. 18, 1911.
"Activity or Passivity—Sympathy or Sacrifice," editorial, Dec. 9, 1911.
"Cui Bono," editorial, Dec. 16, 1911.
"Medical Journals and the Great American Fraud," Propaganda Department, Dec. 16, 1911.
"The Profession Must Apply the Penalty," editorial, Jan. 13, 1912.
"Fraudulent Advertising in High-Class Medical Journals," editorial, Jan. 4, 1913.

"Demand Clean Advertising," editorial, Jan. 4, 1913.
"Medical Journals and the Great American Fraud," editorial, Jan. 18, 1913.
"A Good Principle to Apply," editorial, May 13, 1913.
"Medical Journal Advertising," Propaganda Department, Oct. 11, 1913.
"Medical Journals and the Great American Fraud," Propaganda Department, Oct. 18, 1913.
"Medical Journals and the Great American Fraud," Propaganda Department, Nov. 1, 1913.
"The Medical Times' Advertisements," Propaganda Department, Nov. 8, 1913.

In another letter on the same subject its writer says: "I think the time has arrived when we have a right to expect real leadership from the 'big men' of the profession."

THE MORLEY EAR-PHONE

Another Fraudulently-Exploited Device Sold to the Deaf

The Morley Invisible Ear-Phone is another of the many fraudulently exploited devices sold to the deaf. It is put on the market by the Morley Company of Philadelphia, which has, or had, for its officers and directors the following:

George M. Vickers, President and Director.
Frank Hebron, Treasurer and Director.
Alfred Gratz, Secretary and Director.
L. H. Vickers, Director.
John Thiel, Director.
Dr. Edward Baum, Director.

George M. Vickers is said to be interested, also, in the Puritan Publishing Company of Philadelphia. In what particular branch of quackery the Puritan Publishing Company

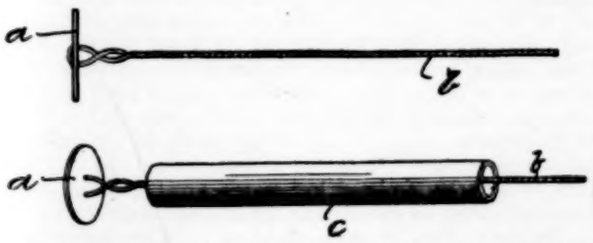

Fig. 1.—Illustrations of the Morley ear-phone reproduced from patent specifications issued to L. H. Vickers. The upper illustration shows the essential parts of the "phone"; *a* is the artificial drum of oiled silk with the waxed silk thread, *b*; *c*, in the lower illustration, is piece of flexible tubing used in inserting the artificial drum.

is engaged we do not know, but our files show that a New York letter broker offers for sale or rent more than 22,000 "Miscellaneous Medical" original letters sent to the Puritan Publishing Company. The same broker, incidentally, can let you have more than 17,000 original letters sent to the Morley concern. Hebron, the treasurer of the Morley Company, is said to have been in the publishing business; Thiel is a lawyer, while Gratz is said to operate the Alfred Gratz Advertising Agency. Dr. Edward Baum, who is said to be in charge of the Morley Company's office, seems to have been graduated by the Baltimore Medical College in 1895 and to have been licensed in Pennsylvania in 1907.

The claims for the Morley device range from inferentially misleading to positively fraudulent. For instance:

"A miniature and invisible phone for the ear. Makes low sounds and whispers plainly heard."
"The Morley Phone is the latest and most effective device for the relief of deafness."
"It . . . transmits sound in increased volume to the auditory nerves."
"It restores hearing like magic."
"More sensitive to vibration and more powerful as a sound transmitter than any other device known."

The latest book sent out by the Morley concern indicates that the fraud-order department of the post-office or some other power for righteousness has dropped a hint to the Morley Company that its claims were likely to bring it in conflict with the law. At any rate the falsehoods, in some cases, have been toned down from the direct to the inferential form, while some of the cruder lies have been eliminated.

The same booklet contains a number of alleged testimonials. In each instance the individual writing the testimonial gives two letters, one said to have been written several years ago and another said to have been written more recently. In the 1911 booklet the later letters are all dated June, 1911; in the 1912 booklet *exactly the same letters* are said to have been dated 1912! In addition to the personal testimonials, the Morley Company reprints what it calls "extracts from articles in some of the recent numbers of the leading medical magazines of the United States and Canada, referring to and commenting upon the Morley Phone." Some of these alleged extracts are from magazines that are notorious for the class of advertising they carry and the utterly uncritical standard of their editorial pages. One, however, is alleged to be taken from the *University Medical Magazine*, the official publication of the medical department of the University of Pennsylvania. The facts in this case, so Dr. B. A. Randall of Philadelphia tells us, are that the Morley Company got one advertisement in the *University Medical Magazine*, about fifteen or twenty years ago. It is from this, its own advertisement, that the Morley Company quotes, and in its 1913 booklet publishes these quotations from an old advertisement as an "extract" from an "article" in a "recent" number of the *University Medical Magazine!*

Another alleged "extract" is given, said to be from the *Canadian Journal of Medicine and Surgery*. A page from the Morley booklet containing the alleged quotation was sent to the *Canadian Journal of Medicine and Surgery*, with a request for information regarding the truth of the matter. The managing editor of the Canadian magazine replied:

"Permit us to state emphatically that the paragraph, as submitted to us, did not appear in this journal and the firm had no right to use it as such."

Fig. 2.—Typical advertisement of the Morley concern.

What is this Morley Phone? We find, on reference to the patent specifications granted to Laura H. Vickers, "inventor," who assigned the patent to George M. Vickers, that this "invisible ear phone" is nothing more or less than the old, well-known Toynbee artificial drum-head. It consists of a circular piece of oiled silk about one-quarter inch in diameter, through the center of which a piece of silk thread has been passed, for the purpose of holding the oiled silk in position. A small piece of flexible tubing comes with it to aid in inserting the device in the ear. Five cents would be a liberal estimate of the cost of the material for a device of this kind. The Morley Phone sells for $5, which, it must be admitted, leaves a considerable margin of profit for advertising purposes.

With a spool of silk thread, costing five cents, and five cents' worth of oiled silk, anybody old enough to use a pair of scissors could make four hundred artificial ear drums that would be just as effective—and just as dangerous in the hands of the deaf public—as the "Morley Phone"; total cost, ten cents! Toynbee constructed his artificial membrane in 1852, but made it of rubber. The Morley concern, fifty years later, puts out practically the same thing made of oiled silk, and has the effrontery to say that this is the "latest and most effective device for the relief of deafness" and "is entirely different in every particular from any other ear-drum."

Summed up, it may be said that the indications for the use of any artificial ear-drum can be determined only by competent aurists. In many cases of deafness the use of such devices, without proper medical advice, is fraught with danger. Even in the hands of skilled aurists, the use of the Toynbee artificial membrane has but a limited application. The indiscriminate sale of a device of this sort, especially at exorbitant prices and under fraudulent claims, is not merely an injury to the purse, but a distinct menace to the health of the deaf.

VEROFORM GERMICIDE OMITTED FROM N. N. R.

Report of the Council on Pharmacy and Chemistry

Veroform Germicide is described in New and Nonofficial Remedies, 1913, as a solution produced by dissolving formaldehyd gas in a solution of soap. It is claimed to contain 20 per cent. of formaldehyd. The claimed germicidal action of this preparation appearing improbable in the light of the investigations of disinfectants made by the Hygienic Laboratory of the U. S. Public Health Service, the owners of Veroform Germicide were asked to substantiate their claims. Such evidence not having been produced, the council voted that Veroform Germicide be omitted from future editions of New and Nonofficial Remedies. The report which appears below was submitted to the manufacturer, and after some months' waiting, was authorized for publication.

W. A. PUCKNER, Secretary.

On October 8, 1912, the report of the Hygienic Laboratory of the United States Public Health Service on commercial disinfectants showing Veroform Germicide to have a phenol coefficient (without organic matter) of but 0.43, was called to the attention of the Veroform Hygienic Company, with the suggestion that a product which has a germicidal value less than that of phenol should probably not be called a germicide. In reply the firm wrote, on Oct. 11, 1912, that ". . . we will have an investigation made and will advise you in detail." This information has not been received and the last letter, dated Dec. 27, 1912, reminding the firm of its promise that the question in dispute would be investigated, brought no reply.

Besides the questionable claim that Veroform is a germicide the direct claim is made that, although less poisonous, "Veroform Germicide . . . has a more bactericidal effect" than carbolic acid. This claim is not substantiated by the Hygienic Laboratory, which found a coefficient of 0.43. Under the circumstances the claim for Veroform Germicide is unwarranted and in conflict with the rules of the council. It is therefore recommended that Veroform Germicide be omitted from New and Nonofficial Remedies, and that publication of this report be authorized.

Association News

THE ALLEGED DECISION AGAINST THE AMERICAN MEDICAL ASSOCIATION

There have appeared recently in the public press and in a number of medical journals interviews and letters purporting to have emanated from Dr. G. Frank Lydston, in which it is claimed that he had won a very important decision in the Appellate Court against the American Medical Association;[1] that the American Medical Association was, and has been, acting illegally for several years; that the trustees are illegally holding office and that all of the acts which have been done by the trustees are illegal. As these statements are untrue, the Board of Trustees, at its meeting Nov. 7, 1913, authorized that the facts be published for the information of those members of the Association who are not familiar with them.

As is well known, for a long time Dr. Lydston has carried on a wordy warfare against the association and its officers. We are informed that for several months prior to January, 1911, he and his attorney endeavored to induce the state's attorney of Cook County to file a petition for a mandamus against the trustees of the association, claiming that they were illegally elected. The state's attorney, after investigating the subject, decided that there was no case against the association and declined to bring the suit. The matter was then taken to the attorney-general of the state of Illinois, who likewise declined to bring the suit.

Jan. 5, 1911, he filed a petition in the Circuit Court of Cook County *against the state's attorney* of that county praying that *the latter be compelled to commence an action of mandamus against the trustees and the association.* To this petition the state's attorney filed a demurrer, which in legal effect is making an issue on the petition as filed to the effect that granting all that is stated in the petition to be true, there is yet no cause of action. No proof or evidence of any kind is offered or received on such an issue. A lengthy hearing was had on the demurrer, and the judge sustained the same and dismissed the petition. From that decision an appeal was prayed but was not perfected.

April 28, 1911, a new petition was filed *against the state's attorney*, which petition was more elaborately drawn than the first one, and again the state's attorney filed a demurrer to the same. Another lengthy hearing was had on this demurrer, and again the judge sustained the demurrer and dismissed the appeal. An appeal was perfected to the Appellate Court, which court consists of three judges sitting as a reviewing court. Arguments were made in that court, and on Oct. 9, 1913, by a divided court, the finding of the judges below was reversed by the opinion of two judges, one judge dissenting. From this decision an appeal has been prayed by the state's attorney and allowed to the Supreme Court of Illinois, where the cause is now pending.

As will be seen, the decision does not in any way affect the American Medical Association, but relates entirely to the duties of the state's attorney. Should the Supreme Court sustain the decision of the Appellate Court all it would mean would be that the state's attorney would have to bring quo warranto proceedings against the American Medical Association. Then, and not till then, would the American Medical Association be technically concerned, and not until then would the question come up as to the association's method of transacting its business. It will be seen that the statements and inferences contained in the interviews and articles above mentioned, that Dr. Lydston had won a great decision over the American Medical Association, are without foundation in fact.

There has never been the slightest doubt or question on the part of counsel but that every act of the association has been perfectly legal, and in every way in conformity with the statute of the state and decisions of the courts.

BOARD OF TRUSTEES OF THE AMERICAN MEDICAL ASSOCIATION,
W. T. COUNCILMAN, Chairman,
M. L. HARRIS, Secretary.

1. The point at issue is whether or not a corporation organized "not for profit" comes under the law of Illinois governing joint stock corporations: specifically whether it is necessary to hold meetings in Illinois for the election of officers. The question is one that affects all similar associations, as for instance the American Pharmaceutical Association, National and Retail Druggists, several fraternal societies, etc.

Correspondence

Unreliable Wassermann Reactions

To the Editor:—My purpose in this note is to emphasize the mistakes, sometimes wretched in their consequence, that are being made in the interpretation of the serum-complement reaction for syphilis. The occasion for it is in the following experience:

A few days ago a young woman of the best type—attractive, intelligent, educated, sensitive, virtuous—came in to me from her physician to see if she had syphilis. During her menses six weeks before she had had a confusing rash, which had recurred, and blood had been sent to a laboratory at a distance to see if the eruption could possibly be that of syphilis. A positive reaction had been reported and a diagnosis of syphilis made from the laboratory. Her physician had sent her to me because, in his own words, he could not believe it. All of the facts were against the diagnosis; there was no history and there were no symptoms of syphilis. She had an eruption which in my opinion could be definitely said not to be syphilis, and this was also the independent opinion of my associate, Dr. A. W. Stillians. I gave blood for a Wassermann to my assistant and sent some also to Dr. F.

G. Harris, without intimating to either of them what result I expected. Each, independently, reported a negative reaction. The woman did not have syphilis.

The bald recital of the facts gives no intimation of the tense misery of the situation. Here was a guiltless young unmarried woman—worthy to be the wife or daughter of one of the best of us—whose life seemed to her and her family to be blasted by syphilis, and who might have gone to her dying day with the conviction that she had syphilis, if her doctor had not been unwilling to accept as final a Wassermann report that had been offered as final evidence. The only way to realize the horror of such a situation is to try to imagine the patient one of the innocent women of one's own family.

This is not a unique case in my experience; I have had several of this character. I know at least two syphilophobes who are going about in constant fear lest they have syphilis, because of mistaken diagnoses of syphilis based on unreliable Wassermanns. And the sometimes appalling character of these mistakes of a positive Wassermann in the absence of syphilis impels me to call attention to them.

Undoubtedly a good many unreliable Wassermanns are being made. The greatest fault is carelessness in technic. Another source of error is old blood. Blood two days old, even when kept in an ice-box, is unreliable for the test; and much more so if it has been kept at car temperature while in transit to a distant laboratory. Finally, some careful and conscientious but overzealous workers are drawing their test so fine in order to increase its sensitiveness that their readings sometimes become unreliable.

This criticism is not directed against the Wassermann as a test. The Wassermann is all right, but it should be appreciated that it is open to error in manipulation. It is not final and unimpeachable evidence, and in improbable cases, like the one mentioned, a positive reaction should not be accepted as final unless one can be perfectly sure of the reliability of the process by which it has been obtained. The tendency to accept the result of a test as infallible is the old story of allowing too much weight to laboratory findings—as though they were above the common human frailty of error. The Wassermann reaction is but one fact in the diagnosis of syphilis. It should be confirmed by other diagnostic evidence. In the very rare absence of this, it is not too much caution to have two independent tests to check each other.

WILLIAM A. PUSEY, M.D., Chicago.

The Paramecium as an Indicator of Pathologic Tissue Changes

To the Editor:—The editorial on the work of Underhill and Woodruff (THE JOURNAL, Nov. 8, 1913, p. 1720), is justified in every way. At the suggestion of Herbert Spencer Jennings of Johns Hopkins and under his guidance, about a year ago I began an investigation of the sudden development of epidemics among paramecia. Every now and again a race of *Paramecium caudatem* or *Paramecium aurelia* will lose its normal powers of multiplication. A division-rate of eight or sixteen a day may suddenly cease, and the race of paramecium may become almost sterile for a day or two and then be annihilated.

We have found many of these differences in division-rate and destruction to be due to specific bacterial troubles, such as the overgrowth of zooglea masses of putrefying organisms of the *B. proteus* group, the *B. turgidus* and the like. Of course, the many racial and environmental accidents that produce acute changes in the rate of division of paramecia are too numerous to allow the deduction to be made that this can be used as an indicator of pathologic tissue change.

LEONARD K. HIRSHBERG, M.D., Baltimore.

Rest in the Treatment of Heart-Disease.—And last, but not least, rest. I say "last, but not least, rest," and I am always tempted to utter the paraphrase: "Now abideth diet, drugs, rest, these three, but the greatest of these is rest."—F. J. Wethered, in (London) *Clinical Journal.*

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USES OF CHROMIUM SULPHATE IN MEDICINE

To the Editor:—Please enlighten me about the claims made for chromium sulphate. M. E. M.

ANSWER.—An answer to a similar query was published in THE JOURNAL, Feb. 4, 1911, p. 367.

In his article published in the *Monthly Cyclopedia and Medical Bulletin*, September, 1908, Dr. S. Kolipinski said, "At the annual meeting of the American Therapeutic Society, May, 1902, the writer read a concise paper on the 'Therapeutics of Chromium Sulphate.' As far as he knows, the statements there made have not been confirmed, nor has this chemical attracted attention as a medicine."

Dr. Kolipinski also said, "The diseases in which chromium has been used with success are: cirrhosis of the female breast, castration, menopause, functional impotency in men, chronic alcoholism, nervous vomiting and vomiting in pregnancy, neurasthenia, locomotor ataxia, exophthalmic goiter and the migraines."

Since that time no literature has appeared on this subject, except as noted before, and the firm which puts out the preparation of chromium sulphate still uses Dr. Kolipinski's paper as practically its sole advertising matter. There is no doubt that the substance has been tried by clinicians who have failed to obtain satisfactory results. If this were not the case, reports of its use would have appeared in reputable medical journals before this time. It seems evident, therefore, that this substance has failed to satisfy the remarkable claims made for it by its introducer.

INFORMATION CONCERNING VARIOUS TESTS

To the Editor:—Please tell me where I can find a thorough description and information of how to make the following tests:

1. Lange's test of cerebrospinal fluid in congenital syphilis.
2. Complement-fixation test for gonorrhea.
3. Abderhalden's test for pregnancy.
4. Tschernogubow's blood-test for syphilis.
5. Kowarski's blood-test for differential diagnosis of diabetes.

W. E. MCKINLEY, M.D., Grant City, Mo.

ANSWER.—1. See "A Manual of Venereal Diseases," by Keogh, Melville, Leishman, Pollock and Harrison, p. 126.

2. See THE JOURNAL, Oct. 5, 1912, p. 1309. A description of the method is given by Lespinasse and Wolff, *Illinois Med. Jour.*, January, 1913, p. 26.

3. See THE JOURNAL, Sept. 6, 1913, p. 788.

4. Tschernogubow's test for syphilis is described in THE JOURNAL, April 2, 1910, p. 114, by W. J. Butler.

5. Kowarski's method of testing for sugar in the urine is a modification of the phenylhydrazin test. It consists in mixing 5 drops of pure phenylhydrazin in a test-tube with 10 drops of acetic acid, gently shaking and then adding about 1 c.c. of a saturated solution of sodium chlorid. To the solid mass that forms is added from 3 to 5 c.c. of the urine, and the test-tube is then heated in the free flame for two minutes after its contents begin to boil. On cooling, the osazone crystals separate from urines containing over 2 per cent. of sugar in one minute, and from weaker solutions in about five minutes. It will be noted that this method is merely a test for sugar and not for differential diagnosis of diabetes.

RABIES AND THE PASTEUR TREATMENT

To the Editor:—I wish to raise the following questions:

1. Are there not more cases of rabies in dog-bitten patients now than before the Pasteur treatment became popularized?
2. Is there not a greater death-rate among dog-bitten patients now than before the Pasteur treatment became popular?
3. Is the fatality among Pasteur-treated patients about 8 per cent.?
4. What would be the death-rate of dog-bitten patients minus the Pasteur treatment?

L. G. LELAND, M.D., Newton Falls, Ohio.

ANSWER.—1. The work of Pasteur did not result in an increase in the number of cases of rabies in dog-bitten patients. He drew the attention of the medical profession and the laity to the disease, which had been comparatively neglected up to that time. Since the Pasteur treatment became popularized, cases of rabies have been recognized,

which accounts for any apparent increase there may be in their number.

2. Before Pasteur's studies on rabies, statistics concerning this disease were very incomplete, difficult to obtain, and not made with the care that the recent ones are. Consequently, the greater number of cases which nowadays appear are due to more research work on rabies.

3. The fatality among Pasteur-treated patients is less than 1 per cent.

4. From 15 to 20 per cent. is considered a moderate estimate of the death-rate for all persons bitten by rabid animals.

ARTICLES ON PTOMAINS

To the Editor:—Please give references to the literature on the subject of ptomains.

EDWARD P. FICK, M.D., Seattle, Wash.

ANSWER.—The following is a list of articles on ptomains which have been listed in our indexes during the past ten years:

Bertrand, D. M. and Berthelot, A.: Ptomain-Producing Bacteria in Human Intestinal Flora, *Lancet*, London, Feb. 22, 1913.

Salmon, J. M.: Ptomain Poisoning, *Kentucky Med. Jour.*, June 1, 1912.

Rodman, H. D.: Ptomain Poisoning, *Kentucky Med. Jour.*, May 1, 1911.

Peck, G. W.: Ptomain Poisoning: Eleven Fatal Cases, *South. California Pract.*, March, 1910.

Bryson, M.: Ptomain Poisoning from Mutton, with Marked Bradycardia, *Brit. Med. Jour.*, Dec. 14, 1907.

Black, S. P.: Pathology of Ptomain Poisoning, *South. California Pract.*, July, 1907.

Sheppard, C.: Three Cases of Fatal Ptomain Poisoning, *South. California Pract.*, July, 1907.

Hungerford, W.: Ptomain Poisoning or Typhoid: Report of Two Cases, *South. California Pract.*, October, 1907.

Anderson, Martha: Ptomain Poisoning, a Case, *Woman's Med. Jour.*, July, 1904.

Barton, P. H.: Ptomain Poisoning, *Cleveland Med. and Surg. Reporter*, October, 1906.

When the ptomains were first discovered it was naturally supposed that all food-poisoning was due to alkaloidal poisons; but subsequent investigation has shown that the alkaloids of putrefaction (ptomains) are comparatively seldom the cause of the poisoning observed. More frequently the condition is an infection, often with the paratyphoid bacillus.

CAUSE OF DISCHARGE FROM THE MOUTH

To the Editor:—A man, aged 60, during heavy sleep at night has coming from his mouth a dram or so of very offensive-smelling, bloody discharge. This occurs at irregular intervals, possibly once a week. The breath is without odor, and there is no mouth or throat condition which accounts for the discharge. Please give the origin and cause of this discharge.

JAMES L. TRACY, M.D., Toledo, Ohio.

ANSWER.—It is, of course, impossible to form a valid opinion as to the cause of such a discharge, except by very careful local examination. We would suggest that the discharge might be from the sphenoidal sinus. A careful examination with the rhinoscope ought to furnish information with regard to this point.

WORKS ON HELMINTHOLOGY

To the Editor:—Referring to the inquiry of W. H. H. of DeRidder, La., for information relative to books on intestinal parasites, permit me to add the following to the titles given in THE JOURNAL, Oct. 25, 1913, p. 1557:

Doflein, F.: Lehrbuch der Protozoenkunde, Ed. 3, Jena, Gustav Fischer, 1911.

Mense, Carl: Handbuch der Tropenkrankheiten, Ed. 2, Leipsic, Johann Ambrosius Barth, 1913.

The latter work is published in three volumes; of the second edition only one volume has as yet been issued. Dr. A. Looss, concerning whom W. H. H. inquires, contributes a large portion of the helminthology to this and the first editions.

L. P. H. BAHRENBURG, M.D., Galveston, Tex., Surgeon, U.S.P.H.S.

To the Editor:—My attention is called to your note referring to works on intestinal parasites (THE JOURNAL, Oct. 25, 1913, p. 1557). In the interests of the general worker, this list should be revised. Only the first reference is actually of any value to such a man. The second reference is to a laboratory manual for use in college courses, the third to a single one of the numerous papers dealing with a particular kind of parasite. The subsequent papers by Dr. Stiles are of great value to the research worker but of less value to others. Probably to most of those who write you for information such papers would be unintelligible.

The work by Looss to which reference is made is one of the chapters, namely, that on intestinal parasites and intestinal diseases, in Mense's "Handbuch der Tropenkrankheiten." The best works for use by American workers in English are Osler's "Modern Medicine," Volume I, and "A System of Medicine," edited by Allbutt and Rolleston, Volume II, Part II, in which individual chapters deal with animal parasites in a complete and authoritative fashion.

HENRY B. WARD, M.D., Urbana, Ill.

Miscellany

Activities of the American Medical Association

The laudable work of acquainting pharmacists with the work of the American Medical Association, especially in its relations to pharmacology and the traffic in proprietary medicines, has been well performed by L. E. Warren, Ph.C., B.S., in an article in the *Journal of the American Pharmaceutical Association*, March 1913. The author describes the organization of the Association and the work of the various councils. He dwells on the work of the Council on Pharmacy and Chemistry of which he says:

"*The Council on Pharmacy and Chemistry.*—For many years previous to the establishment of the Council on Pharmacy and Chemistry the medical profession had been at the mercy of dishonest manufacturers of proprietary medicines. The simplest drug mixtures were exploited as "new synthetics" under the most outrageously extravagant claims for therapeutic worth. Numerous cod-liver oil preparations that contained little or no cod-liver oil were foisted on the helpless doctor. Consumption remedies that were practically nothing but cane-sugar were sold at high prices. Detail men from the manufacturing houses, having no knowledge of medicine or pharmacy, brazenly assumed to teach physicians how to treat disease. Every imaginable kind of fanciful fraud was advertised to the profession. Year after year committees were appointed by the American Medical Association in an endeavor to remedy these evil conditions. Resolution after resolution condemning the practice was passed, but the manufacturers went serenely on humbugging the doctor and his patients. One of the methods that was hit on by the Association for compelling the manufacturers to tell the truth about their products was to compel the divulgence of the formula for every preparation that was to be advertised in the Association's JOURNAL. The medical profession then thought that the perplexing problem had been settled. But immediately some of the most wonderful "formulas" appeared in the advertisements in medical journals! Many were chemical impossibilities. Doubtless to physicians they were sometimes imposing. To chemists they were often extremely absurd. A thorough trial of the new system demonstrated that conditions were but little better than before. After much deliberation the American Medical Association established the Council on Pharmacy and Chemistry, which began the difficult task of "separating the sheep from the goats" in proprietary medicines.

The work of the Council on Pharmacy and Chemistry has a more direct bearing on pharmacy and exerts a greater influence on pharmacists than the activities of any or all of the other councils of the American Medical Association."

The work of investigating proprietary medicines, especially those with doubtful or fraudulent claims as to origin or composition first claimed the attention of the council, largely to the neglect of therapeutic problems. The investigations made of worthless, non-proprietary drugs, of various medicinal foods, of serums and vaccines are mentioned. The more recent studies on therapeutic problems are then taken up:

"Having practically completed the examination of proprietary medicines the council has turned a portion of its attention to problems of therapeutic research. One of these which is not yet completed is a study of the relative toxicity of synthetic salicylic acid and its compounds as compared with that of the acid occurring in plants. For many years certain manufacturers and physicians have maintained that synthetic salicylic acid owing to its impurities is more irritating—more poisonous—and consequently less efficient therapeutically, than that made from natural oil of birch or wintergreen. Others believe that there is no difference. The problem is being attacked by the Council's research committee from its chemical, clinical and pharmacologic sides. Its solution will be of great interest to science and may be of great economic benefit

to pharmacists since the acid from natural sources costs from ten to fifteen times as much as the other kind. After exhaustive studies on cats, mice and rabbits the pharmacologic investigators have reported that they could find no difference in toxicity for these animals between the two classes of preparations. The reports of the chemical examination and of the clinical studies, each of which has been carefully carried out, have not as yet been published, but it appears probable that the findings will show that the synthetic salicylates are not less pure than the natural, that the one is not more toxic than the other and that there is no difference in the therapeutic value of the two.

The question of intestinal antisepsis has been studied by the Council's research committee. For a long time it had been supposed by many physicians that certain drugs when taken internally would prevent or greatly retard the bacterial decomposition of food in the large intestine with the resultant formation of indol compounds and related poisons. Others have doubted the efficiency of the reputed intestinal antiseptics. At the Council's suggestion a well-known bacteriologist undertook to determine whether there really are any intestinal antiseptics. His results, while not absolutely conclusive, show that intestinal antiseptics cannot play as important a rôle in therapeutics as had previously been supposed, and that they are probably of little value."

The necessity of determining the composition of proprietaries and of detecting false claims led to the establishment of one of the most important departments of the association's work, the chemical laboratory. The author describes as follows the reference library connected with the laboratory:

"A most comprehensive and complete reference library containing the latest and best books on chemistry, pharmacy and the allied sciences, has been collected by the laboratory and every important pharmaceutical and chemical journal published in any language is to be found there. The average reader may not appreciate all that this means. It means that the latest and most reliable data concerning new drugs—proprietary or otherwise—from all parts of the world are now at the disposal of the medical profession of America. The larger manufacturing houses have long realized the value of such data for purely commercial purposes, and they have been careful to keep in touch with what was going on outside this country, and were ever on the watch for anything new which might develop and which could be used by them. Physicians, however, have been among the last to learn the facts regarding new remedies; the information which manufacturers collected so zealously for themselves was not allowed to trickle out among the medical profession until it had been colored, flavored and sophisticated, often out of all likeness with the original, but always into apparent praise of the preparations marketed under trade-marked names.

"In connection with this work there is being made an ever-increasing collection of information on practically every pharmaceutical or medical humbug that has come before the public in recent years. This information is collected from the federal notices of judgment under the Food and Drugs Act sent out by the government, from reports of state and municipal food and drug laboratories and from foreign journals. It can be said without fear of contradiction that there are few reports of the analyses of medicines, if at all valuable, whether made here or abroad that escape the watchful eyes of the laboratory staff. Inquiries for information about medical frauds and fakes are constantly being received. A few of these are answered through THE JOURNAL of the American Medical Association, in its department of Queries and Minor Notes, but the limitations of space make it necessary to answer the great majority by correspondence. This work is done by the laboratory staff or by an official of the Propaganda Department. As a correlated branch of the laboratory's work, a "testimonial file" has been compiled in the Propaganda Department which contains the names of several thousand physicians who have written testimonials for various proprietary preparations. As an illustration of the use that is made of this file I will quote from an article in THE JOURNAL of the American Medical Association of recent date:

"'Of 104 physicians who had written testimonials for Duffy's Malt Whiskey, five are members of the American Medical Association, and eighteen have written testimonials for other nostrums. From our files it appears that some of the 104 testimonial-givers are either advertising quacks or are connected with fraudulent medical concerns. It is not difficult to estimate the scientific value of testimonials that come from such sources.'

"Doubtless the greatest value of the laboratory work has come through the fearless publicity which THE JOURNAL of the American Medical Association has given to the laboratory's exposures of the shortcomings of pharmaceutical manufacturers. No firm has been so large or so powerful as to escape criticism of its products or its methods, if criticism were needed; and no firm has been so small or so insignificant as not to receive credit for worthy preparations, if credit were due."

Warren contrasts this fearlessness with the subservient caution exercised by certain state laboratories in removing from their exhibits of adulterated goods the names of manufacturers. The abuses of nomenclature and of the use of copyrighted names are discussed. Warren continues:

"Work of this kind by the Council on Pharmacy and Chemistry is of very great value to the individual pharmacist. It seems to me that it is the duty of pharmaceutical journals to bring these and similar facts to the attention of the pharmacists. If the journals themselves are not in position to make the investigations they can at least abstract the investigations made by the Council on Pharmacy and Chemistry."

Finally he illustrates the work of the Association by a summary of the results of investigation of certain frauds, such as Waterbury's Cod-Liver Oil Compound, prescription fakes, fake "gall-stones," En-Ar-Co Oil, Jaroma, Plantoxine, Thacher's Worm Syrup, Chichester's Diamond Brand Pills, sulphur dioxid cure-alls, Midol and Nurito, Murine, Sanatogen, vile-smelling cure-alls, such as Sulphurro, the "gas-pipe" cures and Lung-Germine.

The work of the American Medical Association in endeavoring to aid the public to obtain a broader conception of public health matters is praised and its exhibition at the International Congress of Hygiene and Demography is described. The author concludes:

"The American Medical Association believes that the public, the pharmaceutical profession and the medical profession must all work together to abolish the public drinking-cup, to exterminate flies and mosquitoes, to eliminate the adulteration of foods, to prevent the pollution of water-supplies, to secure adequate disposal of garbage, to insure the proper cleaning of the streets in cities, and, in short, to perform any other tasks which tend to raise the standard of health and lower the death-rate of our citizens."

Shorter Papers

Writers of scientific papers on medical and surgical subjects will conserve their own interests as well as the convenience of those who listen to their reading, and those who will afterward enjoy the privilege of publishing them, by making them as short as is consistent with clearness of expression and the completion of the subject. As a rule there are few reasons for any paper to contain more than three thousand words, occupying about four pages of this journal. Outside of official documents and reports which cannot properly be abbreviated, only the description of a long series of important cases, similar in kind, but with noteworthy variations, should warrant a paper longer than that described, and even under such circumstances three thousand words should generally tell the story. Many of the very long papers read to tired audiences at every meeting of medical men are mere aggregations of quotations, recounting what this or that eminent man has written on the subject, giving copious references to book and page and stringing the whole together on a slender thread of personal observation. Their authors would do well to consider that in all probability most of the members of their audiences are as widely read as themselves, and sufficiently familiar with the opinions of the eminent men referred to to understand the subject without so many quotations and references. This is said in all kindness and not in a spirit of criticism. The spirit of the age demands concentration, and the concise, lucid and logical paper that tells its story in as few words as are compatible with complete expression and then stops will receive the most respectful attention and have the most satisfactory effect. By all means let us have short papers.—*Southern Med. Jour.*

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

MEDICAL DEFENSE IN CANADA

The Canadian Medical Protective Association is an organization of physicians in Canada for the purpose of mutual assistance and protection against malpractice suits. It has been in existence for twenty-four years, but has only recently been incorporated by an act of the Dominion parliament. The articles of incorporation give the objects of the association as follows:

1. To support, maintain and protect the honor, character and interests of its members.
2. To encourage honorable practice of the medical profession.
3. To give advice and assistance to, and defend and assist in, the defense of members of the association in cases in which proceedings of any kind are unjustly brought or threatened against them.
4. To promote and support all measures likely to improve the practice of medicine.

The objects of this organization are considerably broader than those of similar societies, as assistance is not limited to malpractice suits, but to any unjust proceedings brought against members. The constitution, in addition to enumerating the four objects given in the act of incorporation, provides that the association shall assist in defending civil actions for damages for alleged malpractice "where such actions appear to the executive committee and to the general counsel of the association to be unjust, harassing or frivolous, or where it appears otherwise to be reasonable to afford the member whose conduct is impeached an opportunity of defending himself before a court of law."

Any member of the medical profession in good standing in Canada is eligible to membership. Applicants must be nominated and seconded by two members and must present the qualifications required for membership in the Canadian Medical Association. A local advisory committee of one or more members in each province may pass on the application for membership. The annual dues are $3. Members are liable for dues until their resignations are accepted, and provision is made for the collection of dues by draft or other agencies. The president's report for 1913 shows an increase in membership of sixty during the past year. The solicitor's report shows that in Canada, as in this country, most of the actions brought or threatened were dropped before they reached a hearing. The treasurer's report shows a membership of 812. The annual dues of $3 per member give the organization an average annual income of $2,500.

The general plan of this organization is, in the main, similar to that adopted by some of our state societies in providing for medical defense. The annual dues are larger, as most of our state associations have found it possible to provide entirely adequate defense for $1.50 per member per year. The fact that such an association with a membership of approximately eight hundred has been able to carry on this work on a $3 basis for twenty-four years is ample proof of the soundness of the plan and of the possibility of even the smaller state associations being able to furnish such protection to their members.

Diagnosis of Intussusception in Children.—Turning now to the symptoms of this disease (acute intussusception), there are three which are of great importance in the diagnosis of the condition in children. They are the sudden onset of screaming in a previously healthy infant, followed by vomiting and the passage of stools containing blood and often consisting of blood and mucus only, without any fecal material, the symptoms occurring in this order. In a child they are pathognomonic.—James Sherren, in (London) *Clinical Journal.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: State Society and Homeopathic, Dover and Wilmington, Dec. 9-11. Secretary of the Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

KENTUCKY: Armory, Louisville, Dec. 11-13. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: Regular, 1211 Cathedral St., Baltimore, Dec. 9. Sec., Dr. J. McP. Scott, Hagerstown.

OHIO: Columbus, Dec. 9-11. Sec., Dr. Geo. H. Matson, State House.

PENNSYLVANIA: Philadelphia, Dec. 2-4. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

VIRGINIA: Richmond, Dec. 16-19. Sec., Dr. Herbert Old, Norfolk.

First Examination by the Canadian Medical Council

The first examination conducted under the provisions of the new Canada Medical Practice Act was held at Ottawa, Canada, in October. The results sent us by Dr. R. W. Powell, the Registrar of the Medical Council of Canada, are as follows: Of the 71 candidates examined, 44 passed, 8 were referred back to the council, having failed in not more than two subjects, and 19 (27 per cent.) were rejected. It is understood that certificates granted by the Medical Council of Canada permit the candidates to practice in any province of their choice without further examination.

Missouri September Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at Kansas City, Sept. 2-4, 1913. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 38, of whom 27 passed and 11 failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Hahnemann Medical College and Hospital, Chicago	(1908)	77; (1912) 84.
Northwestern University Medical School	(1912)	87
Rush Medical College, Chicago	(1913)	86, 87
Bennett Medical College	(1913)	81, 82
Tulane University	(1913)	91
Johns Hopkins University	(1911)	85
University Med. College, Kansas City	(1904) 75; (1913)	75, 84
American Medical College, St. Louis	(1912) 76; (1913)	76, 77, 79.
St. Louis College of Physicians and Surgeons	(1908) 79; (1912) 75; (1913)	75, 75.
St. Louis University	(1913)	80
Marion-Sims College of Medicine	(1892)	75
Columbia Univ., Coll. of Phys. and Surg., N. Y.	(1913)	88
Vanderbilt University	(1912)	81
University of Texas	(1912)	87
Marquette University	(1913)	80, 86
FAILED		
University of Arkansas	(1912)	69
Barnes Medical College	(1907) 71; (1910)	57
Ensworth Medical College	(1912)	67
St. Louis College of Physicians and Surgeons	(1913)	59, 60, 70.
American Medical College, St. Louis	(1909)	67
University Medical College, Kansas City	(1913)	66
Meharry Medical College	(1912) 64; (1913)	63

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Hospital Medical College	(1910)	Georgia
Illinois Medical College	(1905)*	Illinois
University of Kansas	(1911)	Kansas
Eclectic Medical University, Kansas City	(1905)	Kansas
University Medical College, Kansas City	(1910)	Kansas
Homeopathic Medical College, St. Louis	(1908)	Illinois
St. Louis University	(1908)	Illinois

* A statement from the college says that the college has no record of this man as a graduate.

Minnesota October Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the written, oral and practical examination held at the State University, Minneapolis, Oct. 7-10, 1913. The number of subjects examined in was 11; total number of written questions asked, 80; percentage required to pass, 75. The total number of candidates

examined was 11, of whom 10 passed and 1 failed. One candidate withdrew. Twenty-one candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Northwestern University	(1911) 88.1; (1912)	83.3
Rush Medical College	(1913)	89.9 89.8
University of Minnesota	(1912) 88.5, 90.3; (1913)	85.3, 88.5
St. Louis University	(1912)	82.3
Temple University	(1910)	89.9
McGill University, Montreal	(1909)	86.9
FAILED		
Meharry Medical College	(1912)	70.4

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Bennett Medical College	(1911)	Wisconsin
Chicago College of Medicine and Surgery	(1913)	Illinois
Hahnemann Med. College and Hospital, Chicago	(1908)	Illinois
Northwestern University	(1911, 2)	Illinois; (1912) Iowa
University of Illinois,	(1904) South Dakota; (1910) (1912) Illinois; (1912) Wyoming.	Illinois;
State University of Iowa	(1902) Iowa; (1909)	Iowa
State University of Iowa, Coll. of Homeo. Med.	(1909)	Iowa
Washington University, St Louis	(1908)	Missouri
Univer. of Pennsylvania,	(1901) Pennsylvania; (1911)	Iowa
Marquette University,	(1908) Wisconsin; (1912) Wisconsin; (1913) Wisconsin.	
University of Helsingfors, Finland	(1903)	Michigan
Royal University of Turin, Italy	(1901)	Michigan

Rhode Island October Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, October 2-3, 1913. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 13, of whom 11 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Maryland, School of Medicine	(1912) 90.1; (1913)*.	
Harvard Medical School	(1911)	84
Tufts College Medical School	(1910)* (1913)	84.6
Columbia University, Coll. of Phys. and Surgs., N. Y.	(1910) 83.6; (1911) 89.2.	
New York Homeopathic Med. College and Hospital	(1913)	87.7
University and Bellevue Hospital Med. College	(1910)	91.3
University of Vermont College of Medicine	(1913)	80
Queen's University, Medical Faculty	(1913)	94.6
FAILED		
Harvard Medical School	(1913)	77.5
Laval University, Medical Department	(1912)	73

*No grade given.

Book Notices

THE EXAMINATION OF WATERS AND WATER-SUPPLIES. By John C. Thresh, D.Sc., M.D., D.P.H. Second Edition. Cloth. Price, $5 net. Pp. 644, with 53 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

The first edition of this book was published in 1904 and is well known to water analysts. Apart from the introduction of new details and illustrations and some important additions to the discussion of water standards, there are few noteworthy changes. So far as a bacterial standard is concerned the author seems inclined to adopt Houston's well-known views, according to which a water is to be regarded as safe when it never contains *Bacillus coli* in 100 c.c. samples; reasonably safe when it contains *B. coli* in less than half the number of 100 c.c. samples examined; suspicious (in Houston's words "to be viewed with some degree of preliminary disfavor") when it contains *B. coli* in a majority of 100 c.c. samples. These standards call for a higher degree of purity than that possessed by those public water-supplies in this country which are usually regarded as of excellent quality.

Some remarkable lapses of judgment are apparent: as when the author remarks (page 64) ". . . it is doubtful whether this organism [*B. typhosus*] alone can induce the disease. I have imbibed millions of them and so has Dr. Houston, yet neither is one penny the worse. Every known fact with reference to epidemics of this fever indicates that the typhoid bacillus alone is not the cause of the disease, and it has long been suspected that some other organism, either by itself or in conjunction with the typhoid bacillus, was the cause." This with reference to a "discovery" by Loris-Melikoff of an anaerobic bacillus in typhoid stools. A curious light is thrown on some English epidemiology by the following passage (pages 65-66): "There is no question that many outbreaks are referred to drinking-water which are due to other causes. It is only necessary for an outbreak to occur for the water to become suspected, and failure to trace the infection to any other source leads to the water being condemned, especially if there is discovered any possible, however improbable, source of contamination. There is scarcely a water-supply in the country which does not stand to be condemned at some time on such evidence. Naturally an investigator does not like to acknowledge himself baffled in his endeavor to discover the cause of an outbreak of typhoid fever, and, rather than acknowledge defeat, the water-supply is condemned. This can be safely done because it is practically impossible for the water authority to prove the negative."

A MANUAL OF VENEREAL DISEASES. Introduction by Sir Alfred Keogh, K.C.B.; History, Statistics, Invaliding, Brevet-Colonel C. H. Mellville, R.A.M.A.; Clinical Pathology and Bacteriology, Brevet-Colonel Sir William Leishman, K.H.P., F.R.S., R.A.M.C.; Clinical Course and Treatment, Major C. E. Pollock, R.A.M.C. Second Edition. Cloth. Price, $3.75. Pp. 318, with 30 illustrations. New York: Oxford University Press, 1913.

This volume is the result of an attempt to make a report of a committee of the medical advisory board of the British Army more valuable to the ordinary military surgeon. After an introduction by Sir Alfred Keogh, the main part of the work, in which individual authorship is not distinguished, constitutes an ordinary treatise on syphilis with a shorter account of gonorrhea and soft chancre. The first chapter on history is mainly concerned with methods of prevention. The failure of former British and present Continental efforts to suppress venereal diseases by regulating prostitution is admitted, and a plan outlined for troops which includes as its first measure an appeal to the high ideal of a chaste life. When such appeal and proper educational measures fail a moderate form of punishment is advocated. The great value of physical exercise is recognized. The purely medical chapters have been revised so as to incorporate the recent advances in the diagnosis of syphilis and the most modern treatment of venereal diseases. The book is thus not merely a book for the military surgeon, but also cannot fail to be useful to the physician in private practice.

TUBERCULIN TREATMENT. By Clive Riviere, M.D., F.R.C.P., Physician East London Hospital for Children, and Egbert Morland, M.B., B.Sc., M.D., Visiting Physician to the English Sanatorium. Second Edition. Cloth. Price, $2. Pp. 247. New York: Oxford University Press, 1913.

This book aims to give the needed advice to the practitioner who wishes to apply this method of treatment. The essential unity of the various forms of tuberculin is insisted on. Two divisions of tuberculin treatment are made, first, tuberculin immunization with tolerance, which they recommend for pulmonary tuberculosis; and, secondly, tuberculous immunization without tolerance—the method employed by Wright in the treatment of local tuberculosis. In this method small doses are employed at considerable intervals without provoking distinct reactions. This form is regarded as especially suitable to children. It would seem that the recognition of the suitability of the two methods to distinct forms of disease is a great gain in clearness as to the indications for the use of this powerful agent. The directions for technic are full and clear. Dosage is reckoned in cubic millimeters instead of fractions of the cubic centimeter.

BACKWARD AND FEEBLE-MINDED CHILDREN. Clinical Studies in the Psychology of Defectives, with a Syllabus for the Clinical Examination and Testing of Children. By Edmund Burke Huey, A.M., Ph.D., Lecturer on Mental Development in the Johns Hopkins University. Price, $1.40. Pp. 221, with illustrations. Baltimore: Warwick & York, 1912.

The importance of the problem of the feeble-minded has attracted a great deal of attention in recent years, and has resulted in an ever-increasing stream of literature. In this book attention is called to the fact that the vast majority of the feeble-minded are outside of institutions and for some

period of their early life are pupils in our public schools. Of those admitted during one year to the Lincoln (Ill.) Institution for the Delinquent, at which the author made his observation on the feeble-minded, 43 per cent. had attended the public schools for one year or more. He says that, except in the case of infrequent offenders and persons whose mental disturbance is due to specific kinds of poisoning, even in their school period these children usually show exceptional conduct and can be picked out by any one trained in clinical observation. He believes that here is an opportunity for studying in advance the main sources of social danger, and of individual misfit and shipwreck. Teachers have opportunity for making observations and rendering exceptional service in this regard. The immediate need is for special classes for children likely to become delinquents. The author considers the subject under the heads of classification and terminology and clinical study of border cases. He gives data of suggested groups and lines of transition from feeble-mindedness to non-feeble-mindedness, and discusses the mental functions to be tested and observed. Many illustrative cases are given, with photographs.

ANATOMY, DESCRIPTIVE AND APPLIED. By Henry Gray, F.R.S., Lecturer on Anatomy at St. George's Hospital Medical School. A New American Edition with the Ordinary Terminology followed by the Baske Anatomical Nomenclature in Latin. Revised by Edward Anthony Spitzka, M.D., Director of the Daniel Baugh Institute of Anatomy. Cloth. Price, $6 net. Pp. 1502, with 1225 illustrations. Philadelphia: Lea & Febiger, 1912.

The new American edition of Gray's "Anatomy" succeeds at the end of three years the eighteenth edition. It differs very little from its predecessor, which is only to be expected, since three years bring little change in the science. Fifty years' continuous practice has enabled the editors of this text-book to approach very near to perfection in the manner of presenting the subject.

Medicolegal

Care Required in Application of Hot-Water Bottles

(Williams vs. Pomona Valley Hospital Association (Cal.), 131 Pac. R. 888)

The District Court of Appeals, Second District, California, reverses a judgment for the defendant and an order denying a new trial in this case, which was brought to recover on account of personal injuries occasioned by reason of alleged negligence on the defendant's part. The complaint alleged the plaintiff's entrance as a patient into the defendant's hospital, and that, while in the hospital and unconscious, a servant of the defendant placed hot-water bags on or about the plaintiff's feet in such a careless and negligent manner that the plaintiff's feet were badly burned and scalded, from which he suffered damages. The court says that certain instructions given to the jury could have had no other effect than to have told them that when the nurse applied the hot-water bottle to the feet of the plaintiff, exercising ordinary care in the manner in which the same was placed, she was absolved from all further care or attention in relation to the patient as regards the effect produced by the application of the hot-water bottle. The court is of opinion that too restricted a construction was given to the averments of the complaint.

The word "manner," in the connection under consideration, means the way of doing anything. The use of the term "manner" in the complaint should be taken to comprehend the way the act was performed, having in view the condition of the patient and the character of the remedies applied. To place a hot-water bottle of such high temperature on the feet of an unconscious man as would burn or scald the feet cannot be said to be a proper way of doing such a thing; and a pleading which refers to the manner as having produced the injury should be given such a liberal construction as would work substantial justice between the parties. To give it the construction adopted, that the subsequent effect of the application in producing burns and scalds was not to be considered, eliminated from the consideration of the jury one of the vital and principal questions presented.

The duty of a nurse, and assuming that a nurse must only exercise the ordinary care which a trained and skilled nurse would be required to use, is a continuous duty. Dealing, as she was, with an unconscious patient, unable to care for himself, it was her duty to observe the effect on the patient of the application of the remedy as much as it was to test its temperature in the first instance. The powers of resistance, the condition of the patient, must of necessity have much to do with the application of remedies, either by a physician or a nurse, and this duty could be observed only by constant and unremitting care and attention, which is just as obligatory on the nurse as is the duty of applying the remedy directed by the physician in charge.

Supremacy of Powers of Boards of Health—Power to Close All Dairies in City

(Alston vs. Ball (S. C.), 77 S. E. R. 727)

The Supreme Court of South Carolina says that the defendants, comprising the board of health of the city of Charleston, passed a resolution requiring all dairies in the city to be closed on or before July 1, 1912. The plaintiffs, who were conducting a dairy within the city, brought this action to enjoin the board from enforcing the resolution. A judgment in favor of the defendants is affirmed.

As the city council undertook, by resolution, to nullify the action of the board of health, the first question to be decided was, Which of these bodies had superior authority in the premises? Under the constitution and statutes, boards of health derive their powers directly from the legislature, and not from the municipalities. Therefore the council was without power to nullify the action of the board of health.

Sections 1451 and 1463 of the Civil Code of 1912 confer ample authority on the boards of health to make and enforce all needful rules and regulations to prevent the introduction and spread of infections or contagious diseases, and generally to make all such regulations as they shall deem necessary for the preservation of the public health, and to define, declare and abate nuisances injurious to the public health. Therefore the board had authority to pass the resolution in question.

As the powers of boards of health are conferred on them by the legislature, it follows that, as long as their actions are not arbitrarily or capriciously taken, and are confined within the limits of powers constitutionally conferred on them, they are subject to no control except that of the legislature; and the court will review their actions only so far as may be necessary to see that they bear a just and reasonable relation to the object sought to be attained, and do not invade personal or property rights vouchsafed to the citizen by the constitution. Within the limits of their power, they are the exclusive judges of the propriety and wisdom of their actions, and so long as they act strictly within those limits, and not arbitrarily or capriciously, they are not subject to the control of the court. In other words, the court cannot set its judgment against theirs, for that would be to usurp their powers. Under the showing made, it could not have been said that the action of the board in this case was arbitrary or capricious, or that it had no substantial or reasonable relation to the purpose for which it was intended, namely, the protection and preservation of the public health. On the contrary, the overwhelming weight of the evidence was that it was not only desirable, but necessary to that purpose.

Power of a Municipality to Deal with Earth-Closets

(Malone vs. City of Quincy (Fla.), 62 So. R. 922)

The Supreme Court of Florida holds that if earth-closets in a city for any reason become a nuisance or otherwise unlawful, the municipality may by reasonable regulations abate them, or otherwise deal with them as the charter powers may authorize. But the power of a municipality to prohibit the use of earth-closets within its limits cannot be implied merely from authority expressly given to regulate their use; and power to prohibit the use of earth-closets in a city is

not conferred by general power given to conserve the public health and general welfare, when the authority to regulate the use of earth-closets is expressly conferred in definite terms, limited in their scope and purpose. When the use of earth-closets is contemplated by a municipal charter, and express limited authority is given to regulate the use of them, their proper use as such is not unlawful, and cannot be prohibited by the municipality, in the absence of express authority to do so, or unless such closets become a nuisance, or their use is otherwise unlawful and within the power of the city to abate or prohibit.

The express authority given the city "to regulate the construction, location and arrangement of earth-closets" in the connection used in the charter act of Quincy has reference to the location of such closets as they are used on property in the city, and does not authorize a prohibition of the proper use of earth-closets in any part of the city. Nor does the express authority to issue bonds for construction and maintaining waterworks and a "system of sewerage" give the city power to prohibit the use of earth-closets. An ordinance forbidding the use of earth-closets in designated portions of the city of Quincy, without reference to whether such closets are a nuisance, is not authorized by the charter act, and a judgment of the municipal court, imposing a penalty for a violation of such ordinance, is invalid, and may be quashed.

Validity of Tenement-House Act Requiring Certificates of Health Department

(Ex parte Stollenberg (Cal.), 132 Pac. R. 841)

The District Court of Appeals, Second District, California, holds constitutional, as a reasonable exercise of the police power, the tenement-house act of that state, which provides that no building hereafter constructed as or altered into a tenement-house shall be occupied in whole or in part for human habitation until the issuance of a certificate by the health department or other department by municipal ordinance designated for that purpose, that said building conforms in all respects to the requirements of this act relative to the light and ventilation and sanitation of tenement-houses, etc. The court says that, generally speaking, all of the provisions, conditions and restrictions imposed by the act relate to matters affecting public health, safety and the public welfare. The police power deriving its existence from the rule that the safety of the public is the supreme law, justifies legislation on matters pertaining to the public welfare, the public health or the public morals. Legitimate business, as well as those things which are nuisances in and of themselves, is subject to control if control is necessary for the preservation of the public health and welfare. Nor does the fact that the section above referred to gives to certain officials authority to determine questions relative to compliance with the law render the act invalid. It will not be presumed that authority will be exercised wantonly or for purposes of profit or oppression.

Appeal the Only Remedy for Unfavorable Action on Bills

(Hoyt vs. Hughes County (S. D.), 142 N. W. R. 471)

The Supreme Court of South Dakota, in reversing a judgment rendered in favor of the plaintiff, says that he had presented at a meeting of the board of county commissioners a bill for $514.60, most of which was for personal services claimed to have been performed as superintendent of the county board of health. A small portion of the bill was for mileage and reports made by the plaintiff. The board of county commissioners allowed $32.90 of this bill, and rejected the balance of $479.70. No appeal was taken by the plaintiff from the action and decision of the commissioners in rejecting and disallowing the $479.70 of the bill, but he some time thereafter brought this action against the county to recover that balance. The county urged that the plaintiff could not maintain the action to recover the balance of account—that the plaintiff's only remedy under the circumstances was by appeal from the action and decision of the county commissioners, and not by direct action. The court is of the opinion that the defendant's contention was well grounded. It is not the method or manner or result of the manner in which such a board acts that precludes the maintenance of an original action, but it is the fact that the board has acted in a matter within its exclusive discretionary power, and having so acted, no matter how erroneously, such action can be reviewed only on appeal.

Some contention was made that the power granted by Chapter 76 of the laws of South Dakota of 1905 to the county commissioners, providing that for certain services the county superintendent of the board of public health shall receive such sums as the county commissioners may allow, is a grant of purely legislative power, the exercise of which is not subject to appeal at all. The court, however, is clearly of the opinion that the power granted to the county commissioners by this section of the statute is not a grant of legislative power, but is a grant of discretionary power to be exercised in a quasi or sort of judicial manner, and is subject to appeal under Section 850 of the political code. But, no matter whether the power granted is quasi-judicial or legislative, a direct action cannot be maintained on such a claim.

Chapter 76 of the laws of 1905 regulates the compensation of the superintendent of the county board of health. The entire amount of the items rejected was included within the provision of the statute for "such other sums as the board of county commissioners may allow," and clearly within the discretionary powers of the county commissioners. The commissioners had the right to investigate the facts in connection with such allowance, and base and form their judgment on the evidence before them. If they erred in such judgment as to such allowance, the plaintiff's only remedy was an appeal for the purpose of reviewing and correcting such action. Courts cannot control such acts of such boards by compelling them to act in any particular manner. Courts can compel them to act, but, having acted, such acts become final unless reversed on appeal, when an appeal is provided for by law.

Employment of Physicians by Overseers of Poor

(Meyers vs. Furnas County (Neb.), 140 N. W. R. 633)

The Supreme Court of Nebraska holds that, under the provisions of Section 14 of Chapter 67 of the compiled Statutes of 1911, if any person, not coming within the definition of a pauper, shall fall sick within any county of the state, not having money or property to pay his or her board, nursing and medical aid, it is the duty of the overseers of the poor of the precinct in which the person shall be to furnish such assistance as they shall deem necessary. This gives the overseer full authority to provide the necessary medical aid to the sick person. When a physician is employed by an overseer of the poor to give medical aid to a destitute person who has fallen sick, and the service required is performed, the fact that the overseer has not made a written report of his doings thereon to the county board cannot defeat the liability of the county for the service rendered under such employment. The averment in a petition that a person had fallen sick under such circumstances as to show her destitution and inability to provide for herself, or be provided for by others, is a sufficient allegation of the dependence on the county, when assailed by a demurrer.

Amendment of Petition in Malpractice Case—When Verdicts Will Not Be Disturbed

(Blakeslee vs. Van der Slice et al. (Neb.), 142 N. W. R. 799)

The Supreme Court of Nebraska affirms a judgment for the plaintiff for damages alleged to have been sustained by a failure of the defendants to properly reduce a fracture of her arm, commonly called Colles' fracture. The court says that it does not think it error that the plaintiff was allowed to amend her petition at the close of the evidence, when she asked leave to amend it by changing the word "ulna" to the word "radius" in furtherance of justice and to conform to the facts proved. To the court it seems clear that the amendment asked for could not and did not in any way mislead the defendants. The case has been tried on its merits, and what-

ever discrepancy appeared in the petition was properly cured by the amendment, and the defendants were not thereby misled to their prejudice. It is usually a matter within the discretion of the district court to allow or refuse to allow a pleading to be amended to conform to the evidence, and, in order to predicate error in allowing the amendment, it must be shown that the trial court has abused its discretion.

Nor could it be said that there was reversible error in permitting counsel to propound questions to witnesses pertaining to a book or treatise on the "Treatment of Fractures," so long as there was nothing in the record showing, or tending to show, that this work or any part of it was introduced in evidence, and whatever reference there was made to it was confined to the fact that there was such a work, and was without prejudice.

It was claimed by the defendants that the plaintiff violated their instructions not to use the broken arm or hand, but the evidence on that question was conflicting, and the verdict of the jury should not be disturbed. When the issues in such an action are all submitted to a jury, under proper instructions, the verdict will not be set aside unless it is shown to be clearly wrong.

Society Proceedings

COMING MEETINGS

American Physiological Society, Philadelphia, Dec. 27-29.
Society of American Bacteriologists, New York, Dec. 31-Jan. 2.
Southern Surgical and Gynecological Assn., Atlanta, Dec. 16-18.
Western Surgical Association, St. Louis, Dec. 19-20.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA

Fourth Annual Session, held in Chicago, Nov. 10-15, 1913

The President, DR. GEORGE EMERSON BREWER, New York, in the Chair

Preliminary Report of a Simple and Rapid Method of Pyloric Closure in Gastro-Enterostomy

DR. GEORGE EMERSON BREWER, New York: The only safe method is the unilateral pyloric closure suggested in 1895 by von Eiselsberg. My method consists in constriction of the pylorus by an aluminum band, which is easily passed round the tube at this point, and quickly rolled with the fingers into an unyielding ring with sufficient compression to obliterate the lumen of the tube, but not to compromise the vitality of the compressed tissues. From a study of experiments on dogs, it is evident that this method of closure produces a complete occlusion of the pylorus, as proved by the facts that water will not pass the constricted point when the stomach is distended, and that sections through the pylorus and aluminum ring show by gross and microscopic examination not only that the pylorus is closed, but also that the vitality of the tissues is not impaired. A second series of experiments shows that the same method can be applied to the pyloric antrum, and also that the pylorus which has been closed for some months can have its function again restored by a second laparotomy and removal of the aluminum band.

Report of a Series of Gasserian Ganglion Operations

DR. HARVEY CUSHING, Boston: I have done 156 operations on the gasserian ganglion with two fatalities, which occurred in the earlier cases. In 100 consecutive cases there were operations on 46 males and 54 females. The neuralgia affected the right side in 62 cases, the left side in 36, and both sides in 2. It has long been the impression that these neuralgias occur much more commonly on the right side, but in the last fifty cases there has been an unusual number of left-sided neuralgias, which has brought the percentage up to 36, whereas previously the ratio between neuralgias of the right and left sides was about 3:1. The average age at operation was 55 years, the youngest patient being 26, and the oldest 86. The average age at onset was 45, the youngest 18 and the oldest 74.

Gastric Hemorrhage

DR. JOHN B. DEAVER, Philadelphia: Gastric hemorrhage, as a rule, is followed by hematemesis, and results from a number of disturbing factors in the mechanism of the upper abdominal circulation. In the minority of cases the blood is not at once ejected, but is passed subsequently by the bowel in the form of tarry stools. Cases of gastric hemorrhage fall into two groups, the surgical and the non-surgical. It is as great a mistake to operate in non-surgical cases as it is to withhold operation in surgical bleeding. Profuse and even fatal hematemesis without demonstrable ulceration of the stomach has been observed in a considerable number of cases, both at necropsy and at operation. In 459 of our cases of upper abdominal disease, hematemesis occurred in only 25 per cent. and 20 per cent. of these cases were either simple ulcer or cancer of the stomach. Hemorrhage more or less acute may result from the formation of the typical acute peptic ulcer, the vessels beneath the muscularis mucosa being opened by the ulcerating process. Such hemorrhage is rarely fatal, the vessels opened being small and their walls still soft and normal, permitting retraction and contraction with the formation of an occluding clot as the blood-pressure is reduced by hemorrhage. While it is true that sudden massive hemorrhage does occur in chronic gastric and duodenal ulcer, it is also true that it is not a characteristic of ulcer to bleed profusely. Occult blood or small recurring hemorrhages are far more characteristic of ulcer and it is therefore incumbent on the diagnostician, in the presence of diffuse hematemesis, to adduce considerable evidence in the way of history or examination before concluding that ulcer is present. The hemorrhage due to malignant disease of the stomach, like that of ulcer, is not commonly sudden and profuse. In the early stages it is slight, even occult in the stools. It is more apt to be persistent than the hemorrhage of ulcer and tends to become progressively more marked. The hemorrhage from malignant ulceration is a slow seepage, as a rule, which gives rise to a little systemic effect of bleeding, but reveals itself by the coffee-ground vomitus or melena. Sudden hemorrhage is one of the modes of termination of gastric carcinoma, but in all save the rarest instances such an event is merely the termination of an already established and evident malignant cachexia. Operation may be indicated in gastric carcinoma when hemorrhage chances to be an early symptom and there is still hope of cure; or it may be indicated in advanced or otherwise inoperable cancer when hemorrhage is so profuse and persistent as to shorten even the period of prognosis given to cancer.

The Operation of Gastrojejunostomy, and the Principles Which Should Determine Its Use

MR. HERBERT J. PATTERSON, F.R.C.S., London: There is little doubt that the immediate results of the posterior operation are better than those of the anterior. The patients convalesce more smoothly, and vomiting is less common, while after the anterior operation it may be necessary to wash out the stomach once or twice during the first few days. As to the remote results, I am inclined to think that the advantage rests with the anterior operation. After the posterior operation some patients, although few after remaining well for months or years, begin to suffer discomfort. In some instances this is due to a mechanical defect at the site of the anastomosis, such as a constriction produced by contraction of the mesocolon encircling the anastomosis. I am quite clear that the mesocolon should be sutured to the stomach a little distance away from the suture line, and not to the jejunum or to the suture line as commonly taught. In other cases the defect is due to a kink produced by contraction of a dilated stomach, or to the formation of adhesions, or to rotation of the jejunum on its longitudinal axis during the process of suturing.

It is said that the anterior operation is more often followed by jejunal ulcer, but I do not think there is any positive proof of this. The proportion of unsatisfactory cases is

undoubtedly small, not more than 5 per cent. For many years I have been maintaining that the operation of gastrojejunostomy is a physiologic one. Sir Berkely Moynihan, on the other hand, has expressed his belief that the "physiologic explanation of gastrojejunostomy is rot." What is the effect of gastrojejunostomy on the evacuation of the stomach? My experience is that in cases in which there is no organic stenosis of the pylorus, the evacuation of the stomach is slightly accelerated. Usually the stomach is empty in from three to four hours after a meal. Another means of comparing the motility of the stomach before and after operation is afforded by the study of the amounts recovered one hour after a test meal. In 60 per cent. of a series of investigated cases the amount recovered after a test meal was less after operation than before, but the difference is not very great. In sixty-six cases the average amount recovered one hour after a test meal was 190 c.c. before operation, and 180 c.c. after operation. As a rule, when there is organic pyloric stenosis, the motility of the stomach is improved by gastrojejunostomy. I think, therefore, that we may conclude that in those cases in which the gastric motility is impaired markedly by pyloric stenosis or by adhesions, the operation of gastrojejunostomy results usually in a marked improvement in the evacuation of the stomach contents. In those cases, on the other hand, in which before operation the motility is unimpaired, gastrojejunostomy usually slightly hastens, but occasionally retards, the evacuation of the stomach. Inasmuch as this retardation or acceleration falls within physiologic limits, we are justified in saying that in cases in which, before operation, the motility of the stomach is unimpaired, the evacuation of the stomach is unchanged by gastrojejunostomy.

Notwithstanding the absence of Gmelin's reaction in 27 per cent. of my cases, I believe that the presence of bile in the gastric contents is a constant and very important feature after gastrojejunostomy. My reason for this statement is the observation that, after gastrojejunostomy, in 99 per cent. of my cases there is an increase of the mineral chlorids in the gastric juice. This increase is not due to greater activity of the gastric mucosa, because, as a rule, there is (in 75 per cent. of my cases) a diminution of the total chlorids. If, then, this increase in the mineral chlorids be not the result of greater activity, it must be due to chlorids added from without to the gastric contents.

We see, then, that after a gastrojejunostomy there is a constant increase in the mineral chlorids of the gastric juice. This increase must be due to chlorids added to the gastric juice by the entrance of bile and pancreatic juice, because (1) the total chlorids of the gastric contents are diminished; (2) undoing gastrojejunostomy diminishes once more the amount of mineral chlorids; (3) if an entero-anastomosis be performed the increase in the mineral chlorids does not occur, and (4) in cases in which there is a marked excess of mineral chlorids, as a rule the increase in mineral chlorids does not follow operations other than gastrojejunostomy. Doubtless part of this increase is due to neutralization of free hydrochloric acid and consequent formation of sodium chlorid. This does not affect my argument because (1) this neutralization must be caused by the carbonates of the bile and pancreatic juice, and (2) if, before gastrojejunostomy, free hydrochloric acid be absent from the gastric contents, there is still an increase in the mineral chlorids after gastrojejunostomy. To my mind the conclusion is irresistible, that gastrojejunostomy is a physiologic operation.

The four practical lessons to be learned are these: 1. The type of gastrojejunostomy employed is of less importance than the manner in which it is performed. 2. If gastrojejunostomy be a physiologic operation its use for the treatment of gastric hemorrhage is correct and explicable. 3. Occlusion of the pylorus is an unnecessary complication of gastrojejunostomy and is based on erroneous pathology. 4. If gastrojejunostomy be a physiologic operation, then it is as efficient for ulcers of the body of the stomach as for ulcers near the pylorus; in other words, gastrojejunostomy is preferable to excision.

(To be continued)

MEDICAL SOCIETY OF VIRGINIA

Annual Meeting held at Lynchburg, Oct. 21-24, 1913

The President, Dr. Southgate Leigh, Norfolk, in the Chair

For a list of the newly elected officers, see The Journal, Nov. 1, 1913, p. 1640.

Heavy Silk Used to Replace a Destroyed Patella Tendon

Dr. A. R. Shands, Washington, D. C.: The patient was accidentally cut with an ax, which severed the patella tendon. He was treated immediately by his doctor, with stitches and a splint. In three weeks the union gave way, and a synovitis developed. At the second operation the patella was found retracted up the leg, with synovial fluid discharging. An effort was made to draw the patella downward; two holes were drilled in it, and through these and through the stump of the tendon I passed twelve braided silk sutures, and put on a plaster-of-Paris splint extending from toes to groin. In ten weeks I made passive motion. In three months the knee could be flexed to 45 degrees.

Tuberculosis and Pregnancy

Dr. L. M. Allen, Winchester: Most laymen and some medical men think that pregnancy benefits the tuberculous woman. A considerable number of cases are due solely to pregnancy rendering the woman tuberculizable. The shock of labor, the loss of blood and the subsequent care of the child are a heavy strain. I have observed three cases in which the bad effect was most rapid, one patient dying sixteen days, one six weeks, and one three months after confinement. Virchow says that he never saw a case of congenital tuberculosis, and if it occurs at all it must be very rare. A child born of tuberculous parents has established a certain immunity, and if it is removed from infection it stands a good chance of not contracting tuberculosis; but it should never be cared for by its mother.

Calculus in the Right Ureter Simulating Appendicitis

Dr. A. Murat Willis, Richmond: More than 1 per cent. of cases of supposed appendicitis turn out to be calculus. In five cases a microscopic examination of the urine disclosed blood and pus, and led to making a roentgenoscopic examination and the finding of a calculus in the right ureter. One patient declined operation, and passed the stone several months later. The advantage of the Roentgen ray in such cases cannot be overestimated.

DISCUSSION

Dr. Arpad G. Gerster, New York: In certain cases of appendicitis the reverse is true; we think that we are dealing with a kidney case when the primary trouble is in the appendix. I recall a case of a young girl with symptoms of distention of the right urinary system, but the picture was not perfectly clear. She had chills and high fever, and the loin and right hypochondriac region were exceedingly tender. Catheterization of the right ureter was negative. I operated and found the gall-bladder normal, but the kidney was enlarged. I failed to examine the other kidney and the iliac fossa. I made a lumbar incision and opened and drained the kidney. In two weeks the symptoms grew worse, the kidney disintegrated and I decided to take it out. Then I opened the abdomen through the former incision and found the appendix attached to the posterior peritoneum. It had infected the kidney by contact. I took out the kidney and the appendix, and the patient recovered.

Dr. George Tulley Vaughan, Washington, D. C.: Dr. Willis did not speak of adhesions. In a boy of 20 I found the adhesions from a chronic appendix binding the ureter close to the wall of the pelvis. In a young girl the appendix crossed the ureter and firmly attached itself to the ovary.

Dietetic Treatment of Tuberculosis

Dr. John J. Lloyd, Catawba: Carbohydrates and fats can, in a measure, be substituted for each other. We must furnish an extra supply to the cells in order to maintain nutrition, but the day of stuffing tuberculous patients is past. We aim

to bring about a condition of slight overnutrition. Fat should preferably be of animal origin. Three well-balanced meals, and in addition 3 pints of milk and several eggs should be given.

What Virginia is Doing Against Tuberculosis

DR. B. L. TALIAFERRO, Catawba: Tuberculosis remains the greatest menace in our state. Last year there were 3,523 recorded deaths, and many not reported. For four years we have been waging war at the Catawba Sanatorium. There is only one private sanatorium in the state, that at "Mountain View," near Catawba. We have a well-equipped laboratory at the State Health Department in Richmond. The school-nurse and the visiting nurse are used to some extent and are active for good. The interest the corporations are taking is a hopeful sign. The Metropolitan Life-Insurance Company has visiting nurses. The Chesapeake and Ohio Railway Company and others are erecting camps for treatment. The State Colored Insane Hospital has a colony, with separate kitchens, etc. More facilities for the colored race are needed. Only those in the state prison and in the insane hospital are cared for by the state. Better facilities for diagnosis are also needed. We often have patients sent to the sanatorium in an advanced state of tuberculosis, whom we cannot admit.

DISCUSSION

DR. L. G. PEDIGO, Roanoke: One advantage of sanatorium treatment is that the patient is stopped from thinking so much about his stomach. Stomach washing, especially with silver nitrate, tends to clear up the catarrh.

DR. STUART MCGUIRE, Richmond: We have no ready-made, sure-fire method of diagnosis in tuberculosis, but we should not discredit those which we have. The Roentgen ray is invaluable in certain cases in helping to clear up a diagnosis. If we sweep all these away, what have we left? We cannot wait for the pathologist to find a cavity. We must keep what we have and build on it for the future.

DR. JOHN J. LLOYD, Catawba: Using tuberculin in small doses is one way of studying the patient, and it is still being used by good diagnosticians. The most important single item of treatment is rest.

Volkmann's Contracture

DR. STEPHEN H. WATTS, Charlottesville: I have had three cases of Volkmann's contracture caused by too tight application of splints in treating fractures. I wish to warn against this practice. Cut off the splints if necessary; it is better to have a deformity than this condition. It results from shutting off the circulation too long, which causes an ischemic myositis. Prevention is better than cure. Operative division of the flexor tendons I mention only to condemn. Shortening the bone or lengthening the tendons may be done. The former, I think, is the best. In one case I loosened up the nerves and then took out 2 or 2.5 cm. of bone. In a second case there was a fracture of the external condyle of the humerus, and a bad deformity. An incision was made from the wrist to the elbow, and I dissected up the nerves, which were badly involved. I operated two and a half months after the fracture occurred. In a third case there was a silver fork deformity. I chiseled off the upper fragment and obtained a perfect result.

Some Methods of Preventing Puerperal Sepsis

DR. GREER BAUGHMAN, Richmond: The prophylaxis may be placed under six heads: 1. The physician must keep clean. 2. He must have a proper armamentarium. 3. A soap-suds enema should be given before the os dilates or the waters rupture. 4. The accoucheur's hands should be treated as carefully as in major surgery. 5. No vaginal douche, before or after, should be given, except when absolutely necessary. 6. Internal digital examinations should be avoided. This is most important. The more you accustom yourselves to making external examinations, the less you will have to resort to internal examinations.

DISCUSSION

DR. W. A. PLECKER, Richmond: The midwives of the state are extremely ignorant. Fifty per cent. of the cases of confinement in the state are attended by them, which I know from being registrar of vital statistics. They have an immense number of stillbirths. Breech presentations are invariably lost by them as they do nothing to extract the after-coming head.

DR. H. U. STEPHENSON, Toana: The woman should be allowed to rise to urinate, and should be carefully assisted up, in order to empty the vagina of blood and accumulations as soon as possible. Especially is this true in country practice, in which patients cannot be seen so often.

DR. JOHN F. WINN, Richmond: There should be a stringent law against selling the midwives ergot. I think that this is the cause of many stillbirths.

Teaching Physiology and Hygiene in Secondary Schools

The Executive Council suggested the following: "We recommend that the Medical Society of Virginia urgently advise that the subject of physiology and hygiene be placed as a major subject in the curriculums of the secondary schools; that a committee of five be appointed by the president, to be known as the Committee of Instruction in Physiology and Hygiene, and that this committee be enlarged by inviting the following to become active members: the state superintendent of public instruction (ex officio); the president of the Teachers' Cooperative Association (ex officio), and the professor of secondary education at the University of Virginia (ex officio)."

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, VI, No. 5, pp. 289-380

1 *Heat and Summer Diarrhea. J. Zahorsky, St. Louis.
2 *Influence of Atmospheric Conditions on Mortality of Infants Suffering with Gastro-Intestinal Disorders. A. S. Bleyer, St. Louis.
3 *Complement Fixation Reaction of Blood of Children and Infants, Using Bacillus Abortus as Antigen. W. P. Larson and J. P. Sedgwick, Minneapolis.
4 *Experiment with Raw and Heated Cow's Milk and Its Lesson. E. C. Schroeder, Bethesda, Md.
5 Roentgen Ray in Pyloric Obstruction. L. R. De Buys, New Orleans.
6 Vulvovaginitis in Children. R. M. Smith, Boston.

1. **Heat and Summer Diarrhea.**—A very thorough study by Zahorsky has convinced him that the mortality of summer diarrhea is practically the same all over the United States. The only marked exceptions are certain cities on the Western Coast. The mortality of diarrheal diseases is twice as high in the summer as in the winter. A room temperature of more than 85 F. has a detrimental influence on the sick baby.

Hyperthermia may be produced in infants when the day and night temperature is more than 85 F., but this thermic fever does not produce diarrhea or appreciably raise the mortality rate. Summer diarrhea is not the effect of high atmospheric temperature alone, but it cannot as yet be denied that excessive heat may lower the tolerance to carbohydrates and other elements of food.

Zahorsky says we must seek the cause of summer diarrhea (1) in micro-organisms whose virulence and activity may be increased in the summer; (2) in endogenic or ectogenic toxic substances of unknown nature.

2. **Atmospheric Conditions and Mortality of Infants with Gastro-Intestinal Disorders.**—Bleyer found that a definite relation between atmospheric heat and deaths among infants suffering with gastro-intestinal disturbance exists; at what degree of heat lethal effects are seen does not appear in his charts. So-called "heat-peaks" or short-lasting but excessive temperatures doubtless emphasize, but they do not dominate the summer infant death-rate; whether many of these deaths are the direct result of "heat-stroke," although easily supposable, has not been shown. Continuous heat shows a stronger relation, although not necessarily an immediate relation, to

deaths of infants suffering with gastro-intestinal disorders, which, as infants are now housed and fed, is very fairly constant.

3. **Complement Fixation Reaction of Blood of Children and Infants.**—In systematically examining the serum of women who have aborted, Larson and Sedgwick have found that a large number give a positive complement-fixation reaction using the *B. abortus* as antigen than when the ordinary syphilitic antigen is used.

From the work of Cotton and Schroeder we know that 10 per cent. of market milk contains the *Bacillus abortus*; there can, therefore, be little doubt that any individual using dairy products is amply exposed to infection. Bang has shown that animals may readily be experimentally infected with this organism by administering it per os. If the *B. abortus* is pathogenic for human beings, as it is for guinea-pigs, and can be transmitted through the digestive tract as is the case with cattle, we would expect infants and children to be the subjects most frequently infected. Larson and Sedgwick have to date examined the blood of 425 children by the complement-fixation method and have found at least some support of the above-expressed hypothesis. Of these 425 cases they found seventy-three positive and 352 negative reactions. In other words, the blood of 17 per cent. contained antibodies against the *B. abortus*. Agglutination tests were made in a large number of cases. They found in working with human serum, as did Holt with bovine serum, that the agglutination and complement-fixation tests run parallel. Ehrlich and Morgenroth found that the specific hemolytic antibodies would unite with the washed erythrocytes when the latter were placed in the serum and left for a few hours. By centrifuging this mixture and decanting off the supernatant serum they found that the latter had, by the contact with the blood-cells, been depleted of the hemolytic antibodies. In other words, the antibodies had attached themselves to the blood-cells and been removed with these.

The same is true of the *B. abortus* antibodies. By treating a positive serum with a suspension of the Bang bacillus, the serum, after a few hours' contact, has been found to be negative when separated from the organisms by the centrifuge. If an adequate amount of complement is then added to the sensitized bacilli and incubated for an hour, the complement will become fixed, thus indicating further that we are dealing with specific antibodies. To the pediatrist, it is of particular interest that inoculations of guinea-pigs with the *B. abortus* has been shown to produce lesions of the lymph-nodes, spleen, liver, kidney, testicle, lung and bones, and that these lesions are suggestive, anatomically, of those of tuberculosis. These findings of competent observers together with the experience that inoculation may produce epiphyseal enlargements, and 17 per cent. of positive reactions among children with anatomic lesions of the osseous system, most of them with clinical diagnoses of tuberculosis and rickets, indicate very clearly the need of further investigation.

4. **Raw and Heated Cow's Milk.**—Schroeder believes those who have studied the question impartially cannot be far from the conclusion that the infants who must, unfortunately, be fed artificially on cow's milk or the milk of a foreign species, and invalids whose diet is restricted as a whole or in part to milk, should receive properly certified milk efficiently pasteurized, or preferably, boiled, and that the general milk-supply should be made as good as the economic conditions affecting the production and handling of milk permit, and should be properly pasteurized, or preferably, boiled, under official supervision. It is constantly becoming more and more apparent that we lack the means to produce cow's milk that is constantly free from pathogenic agents, just as the number of instances are increasing which prove that seemingly healthy individuals often are dangerous disseminators of disease germs. Milk is a cause of much disease, and there are several kinds of milk that are responsible for this charge. Dirty, stale, adulterated or otherwise objectionable milk, raw, pasteurized or boiled, is and remains a menace to health. Heat, applied to milk, is not a renovating, rejuvenating or a cleansing agent; all one can expect of it is to neutralize those specific germs of disease that find their way into milk, which is the best culture medium for bacteria among all articles of food.

American Journal of Insanity, Baltimore

October, LXX, No. 2, pp. 281-544

7 *Cerebral Syphilis: Clinical Analysis of Twenty-Six Cases—Seven with Autopsy. D. K. Henderson, Baltimore.
8 *Clinical Contribution to Irregular and Unusual Forms of Status Epilepticus. L. P. Clark, New York.
9 Conditions in South China in Relation to Insanity. C. C. Selden, Canton, China.
10 Statistical Studies of Insane. J. V. May, Albany, N. Y.
11 Genetic Concept in Psychiatry. W. A. White, Washington, D. C.
12 Psychology and Medical School. E. S. Abbot, Waverly, Mass.
13 Widening Field of Practical Psychiatry. W. L. Russell, White Plains, N. Y.
14 Problems with Insane. L. V. Briggs, Boston.
15 *Occupation as Remedial Agent in Treatment of Mental Diseases. A. V. Goss, Taunton, Mass.
16 Congregate Dining-Room and Its Management. A. H. Harrington, Howard, R. I.
17 Improvement of Medical Service and Care and Treatment of Insane. W. G. Ryon, Albany, N. Y.

7. **Cerebral Syphilis.**—Henderson's paper consists of the systematic clinical analysis of twenty-six personally observed cases of cerebral syphilis, in seven of which the diagnosis was confirmed by autopsy. He says that cerebral syphilis plays an important part in the production of mental disease, and should occupy a more prominent place among the organic psychoses than it heretofore has done. The *Spirochaeta pallida* has for long been surmised to be the causal organism, but it was not until 1910 that Strasmann first demonstrated its presence in the central nervous system of an adult with acquired syphilis; the second case is reported in this thesis. Trauma, alcoholism and physical and mental strain are important contributory factors. Reinfection with syphilis is quite possible provided the initial infection has been thoroughly cured. Anatomically, three main types of cerebral syphilis are differentiated; viz., meningitis, endarteritis and gumma. Clinically, this differentiation is seldom possible, and is without practical value, as the treatment is the same in all irrespective of the type. The majority of cases of cerebral syphilis develop within the first three years after primary infection, and rarely more than ten years after infection.

In regard to the physical signs, Henderson says that the Argyll Robertson phenomenon is the one on which most weight should be laid in differential diagnosis, as it is rarely present in cases of cerebral syphilis. Other important features are: (a) an acute onset with headache, dizziness and vomiting; (b) cranial nerve palsies; (c) convulsions without loss of consciousness, but usually followed by permanent focal symptoms; (d) intactness of speech and writing; (e) absence of facial tremor. Cerebral syphilis not infrequently causes pseudobulbar paralysis, and six cases of this affection have been reported. The mental symptoms of cerebral syphilis are of the nature of those seen in acute organic reactions, and consist of confusion, delirium, amnesia, hallucinations, retention defect and a poor memory for recent events; in addition there is relatively little disintegration of the personality. The Wassermann reaction must be considered in relation with the clinical picture in each individual case; when the Wassermann reaction with the cerebrospinal fluid is negative, the diagnosis of cerebral syphilis is indicated.

It is frankly admitted by Henderson that there is no pathognomonic sign for cerebral syphilis; but if the nature and character of the onset and the above-mentioned physical and mental symptoms and signs are correlated, a disease entity is formed which has every right to be considered characteristic. Anomalous features, among which may be mentioned euphoria and grandiose ideas, and confabulatory states, are more common in cerebral syphilis than is generally recognized; special attention must be paid to the setting in which these features occur, because when occurring in a setting of confusion they mean practically nothing.

Recent statistics confirm Henderson in the opinion that the prognosis of cerebral syphilis, as compared with other organic affections of the nervous system, is relatively good; the most

favorable cases are those which develop soon after the primary infection, and those of a meningitic or gummatous type. Mercury, no matter in what form administered, is an exceedingly valuable drug in the treatment of syphilis, provided it is given in a systematic way. The best results are, however, probably obtained by combining mercurial and salvarsan treatment. Potassium iodid acts simply as an eliminative agent, and has no specific action on the *Spirochaeta pallida*. The only safe treatment is prophylaxis.

8. **Unusual Forms of Status Epilepticus.**—In the past ten years, in private practice, Clark has known three of his severest cases of epilepsy with status attacks to enjoy complete remission or cure from any manifestation of the epilepsy for three, five and eight years, respectively, and this, too, occurred without sedative medication being employed. One patient had as many as 120 grand mal attacks a day and fever of 105 F. during the status. He states, however, that all of these recoveries occurred in cases of short duration and in which no mental changes had taken place. They were, by all strict tests, however, true epilepsy as ordinarily considered.

15. **Occupation in Mental Diseases.**—Among no class of patients are the beneficial effects of employment more marked than among the insane in our hospitals. Employment as a remedial agent has been made use of in the Taunton State Hospital from the time it was opened in 1854 until the present time, a period of nearly sixty years. Goss considers the results obtained in consequence of the employment of patients in this institution during this long period.

Annals of Ophthalmology, St. Louis

October, XXII, No. 4, pp. 617-797

18 Ocular Comfort and Its Relation to Glare from Reflecting Surfaces. F. A. Vaughn and N. M. Black, Milwaukee, Wis.
19 Degeneration of Corneas of Man and His Adult Son. B. Chance, Philadelphia.
20 Hole in Disc. C. Williams, Philadelphia.
21 Trephining Operation in Glaucoma. J. S. Wyler, Cincinnati.
22 Interstitial Keratitis of Luetic Origin. G. S. Derby and C. B. Walker, Boston.
23 Usefulness of Dionin in Early Senile Cataract. E. L. Jones, Cumberland, Md.
24 Prevalence of Opticians' Mistakes. I. Hartshorne, New York, and A. C. Durand, Ithaca.
25 New Operation for Extirpation of Tarsus of Upper Lid; Report of Case. F. W. Dean, Council Bluffs, Ia.
26 Case of Primary Sarcoma of Cornea. L. W. Dean, Iowa City, Ia.

Archives of Pediatrics, New York

October, XXX, No. 10, pp. 721-800

27 Why Does Operation for Removal of Adenoids Frequently Fail to Relieve Mouth Breathing? H. M. McClanahan, Omaha, Neb.
28 *Ammoniacal Diaper and Its Correction. T. S. Southworth, New York.
29 *Influence of Variations of Diet on Gastric Motility in Infants. M. Ladd, Boston.
30 Importance of Wassermann Reaction from Prognostic as Well as Diagnostic Standpoint. W. P. Lucas, Boston.
31 Age and Seasonal Incidence of Diseases of Children. C. Herrmann, New York.
32 Infant Feeding. H. Rulison, Albany, N. Y.
33 *Treatment of Hernia in Infancy. J. P. Hoguet, New York.
34 Public and Professional Confidence in Certified Milk and Basis for This Confidence. M. J. Synnott, Montclair, N. J.
35 Tent-Basket for Outdoor Sleeping of Infants. W. Truslow, Brooklyn.
36 Serotherapy of Epidemic Cerebrospinal Meningitis: Report of Cases. H. A. Ong, Washington, D. C.

28. **Ammoniacal Diaper and Its Correction.**—The detection of a noticeably ammoniacal odor on the diapers of an infant, especially if the diaper has been recently removed, and the phenomenon is repeated, Southworth says, points to a definite disturbance of metabolism. Furthermore, this ammoniacal odor may be regarded to some extent as an index of the disturbance, since it tends to disappear when the food has been adjusted so as to allow of more perfect metabolism. For the present, the fat of cow's milk seems to be the more frequent offender when given in excess of the normal capacity, or in cases of fat intolerance when given in excess of the individual's capacity. Southworth insists that more attention should be paid than has been paid in the past to the ammoniacal diaper as a clinical sign. The great desideratum in imparting to others the principles of infant feeding is to be able to point out definite indications for changes in the composition of the food. An odor of ammonia on the diaper furnishes such indication, for it at once directs attention to a disturbance of metabolism, presumably traceable to an actual or relative over-feeding with the fat of cow's milk.

29. **Influence of Diet on Gastric Motility in Infants.**—Ladd states that the casein of cow's milk, when given in high percentages, has a decided action in prolonging the emptying time of the stomach. If this casein is precipited outside the body, the emptying time is greatly accelerated. The presence of fat has no retarding action, and in some cases seems to favor the exit of the stomach contents. Ladd is of the opinion that there is some reason to believe that barley starch renders the food more easy of exit.

33. **Treatment of Hernia in Infancy.**—Experience leads Hoguet to say that operation is always indicated in otherwise healthy babies that have a hernia that cannot be perfectly held in place by a truss—and the word perfectly is emphasized—that the operation itself is without danger and the anesthetic, if properly given, is of very little danger. All patients with strangulation or persistent incarceration must, of course, be operated on as soon as possible. The treatment of umbilical hernias in infants is comparatively simple. If treatment is begun early enough, that is, when the child is only a few months old, practically all of these patients can be cured by applying a small pad over the hernia and holding it in place with a piece of adhesive plaster, which is carried all the way around the body. The plaster has to be renewed every ten days or so, and it is very important that there be no interruption in the treatment. The pad and plaster generally have to be kept on for five to ten months before the child is cured. In children over two years of age this method of treatment should be given a trial for a few months, and then if not successful operation is indicated. Either the ordinary suture by layers or the horizontal overlapping operations give very excellent results in children.

Boston Medical and Surgical Journal

November 6, CLXIX, No. 19, pp. 665-700

37 Progress and Problems in Preventive Medicine. M. J. Rosenau, Boston.
38 Surgical Treatment of Pulmonary Tuberculosis. M. E. Lapham, Highlands, N. C.
39 Orthopedics and Sanatorium. H. J. Hall, Marblehead, Mass.
40 Hereditary Chorea with Report of Case. W. A. Boyd, Westport, Conn.

Journal of Experimental Medicine, New York

November, XVIII, No. 5, pp. 687-800

41 *Relation of Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice: The Blood-Picture at Various Periods after Splenectomy. J. H. Musser and E. B. Krumbhaar, Philadelphia.
42 *Idem: Effect of Hemolytic Serum in Splenectomized Dogs. R. M. Pearce and M. M. Peet, Philadelphia.
43 *Relation of Pulmonary and Bronchial Circulation. A. A. Ghoreyeb and H. T. Karsner, Boston.
44 *Studies in Infarction: Circulation in Experimental Pulmonary Embolism. H. T. Karsner and A. A. Ghoreyeb, Boston.
45 Purins and Purin Metabolism of Some Tumors in Domestic Animals. E. R. Long, Chicago.
46 Hemolytic Properties of Fatty Acids and Their Relation to Causation of Toxic Hemolysis and Pernicious Anemia. W. F. McPhedran, Toronto.
47 *Pneumonic Lesions Caused by Bacillus Megatherium. M. Wollstein and S. J. Meltzer, New York.
48 *Character of Pneumonic Lesions Produced by Intrabronchial Insufflation of Virulent Streptococci. M. Wollstein and S. J. Meltzer, New York.
49 *Disturbances of Heart-Beat in Dog Caused by Serum Anaphylaxis. G. C. Robinson and J. Auer, New York.
50 *Experiments on Cultivation of So-Called Trachoma Bodies. H. Noguchi and M. Cohen, New York.
51 Toxicity of Gentian Violet and Its Fate in Animal Body. J. W. Churchman and L. F. Herz, New Haven.
52 *Comparative Viability of Pneumococci on Solid and on Fluid Culture Media. L. J. Gillespie, New York.
53 Ferment Action: Toxicity of Some Proteoses. J. W. Jobling and S. Strouse, Chicago.
54 Idem: Relation between Lysis and Proteolysis of Pneumococci. J. W. Jobling and S. Strouse, Chicago.

41. **Blood Destruction and Regeneration.**—After splenectomy, Musser and Krumbhaar state that anemia usually develops quickly and reaches its height in from three to six weeks; then with gradual improvement the blood-picture

approaches the normal after about three to four months, with complete return to normal in five to ten months. Accompanying this is marked leukocytosis reaching its height in twenty-four hours but persisting to a slight degree for several months. Variations, however, may occur, in that the anemia may develop slowly and be of slight degree, or the reparative process may be delayed and up to ten months incomplete. The anemia is, however, inevitable, as is also, later, some degree of repair.

42. **Idem.**—The increased resistance of the red blood-corpuscles characteristic of the splenectomized animal, Pearce and Peet found, is as evident one year after removal of the spleen as it is at earlier periods. So also is the decreased tendency to jaundice after the administration of hemolytic serum. The increase in resistance of the red cells cannot be explained on the basis of an increase in reticulated cells in the circulating blood.

43. **Relation of Pulmonary and Bronchial Circulation.**—The most striking point brought out in this study by Ghoreyeb and Karsner is that as long as a definite pressure is maintained in either the pulmonary or bronchial circulations, the admixture of bloods is extremely limited. If, however, in either system the pressure sinks to zero the possibility of supply by the other system becomes evident. It takes much longer for the mass injected through the bronchial arteries to penetrate to all parts of the lung than when the mass is injected through the pulmonary artery; but when accomplished, the injection reaches to all capillaries including those of the pleura, the only vessels remaining uninjected being the larger trunks of the pulmonary artery. On the other hand, the injection of the bronchial vessels by way of the pulmonary arteries is not complete with normal pressure, but occurs rapidly when a high pulmonary pressure is employed. It is therefore probable that either circulation can suffice for the simple nutritive demands of the lung if the other system is interfered with.

It has been shown that embolism of the pulmonary artery, without other circulatory disturbance, does not lead to necrosis of the affected area of the lung, but it is probable that the preservatioin of circulation is not due to collateral bronchial circulation so much as to the free anastomosis and early division into capillaries of the pulmonary artery. In support of this statement is the fact that the appearance is not altered when the bronchials are ligated at their origin. The same ligation shows no subsequent interference with the nutrition of the bronchi up to a period of five weeks, demonstrating that the pulmonary circulation is sufficient to provide for the nutrition of the bronchi. If, however, as Virchow has shown, the pulmonary artery supplying an entire lobe be occluded, the bronchial circulation can and does suffice for the nutrition of the lobe.

In the case of the occlusion of a branch of the pulmonary artery the pressure in the area interfered with does not sink to zero because of the collateral circulation in this area; whereas, if the main trunk is occluded no collateral supply is available, the pressure sinks to zero, and the bronchial artery becomes available as a source of blood-supply. From these studies it would appear that the part of the lung tissue not in intimate contact with oxygen in the air is supplied by oxygenated blood of the bronchial arteries, and that the tissues through which the pulmonary blood circulates take up whatever organized nutriment they need from the pulmonary blood and possibly provide for their oxygen and carbon dioxid interchange (which must be very slight) either directly with the alveolar air, or by finding sufficient oxygen in the venous blood of the pulmonary artery.

44. **Infarction.**—The same laws for mixture of the blood of bronchial and pulmonary vessels laid down in connection with the circulation in the lung in general, was found to apply also to the circulation in an area of embolism; i. e., there is no notable mixture of the bloods until the pressure in the one system or the other sinks to zero. Simple embolism of the pulmonary artery results in lowered pressure in the embolic area, the pressure, however, not sinking to zero unless the blood-supply of an entire lobe is cut off. The circulation in the embolic area may be improved by increasing the pressure in either the pulmonary or bronchial arteries, but so long as the two circulations are going on, extremely high pressures are not sufficient to restore the circulation to normal in the area of embolic congestion. With normal pressures in the two vascular systems, an area of pulmonary embolism involving less than the entire lobe receives its blood-supply almost entirely from the rich anastomosis of the pulmonary artery between its own branches, and only when the bronchial pressure is raised to an extremely high point does the blood from this vessel play a notable part in the circulation in the area.

47. **Pneumonic Lesions Caused by Bacillus Megatherium.**—The saprophytic *Bacillus megatherium*, Wollstein and Meltzer found, produced a definite pulmonary lesion which in gross appearance resembled the lesion of lobar pneumonia. The lesion was one of intense leukocytic exudation which, as in some other cases of experimental lobar pneumonia, did not invade the framework of the lung. But the exudate contained no fibrin. There were practically no bacilli, either in the heart's blood or in the lung. The growth of two colonies from one of the cases hardly changes the rule. The lesion did not progress after twenty-four hours; nor did it show a definite increase in extent or intensity with the increase in quantity of the injected cultures. The resolution of the exudate began practically at the end of twenty-four hours and was far advanced on the third day. Although there was considerable leukocytic infiltration there was no phagocytosis apparent twenty-four hours after inoculation. Taking all the facts into consideration, the authors gain the impression that the lesion produced by the saprophytic *Bacillus megatherium* differs only quantitatively from that produced by an avirulent pneumococcus. The fact stands out prominently that a saprophytic bacterium is capable of producing a pneumonic lesion similar in gross appearance to that of mild lobar pneumonia. The authors suggest that it is not improbable that other saprophytes may be capable of producing pneumonic lesions which, in specific instances, may resemble lobular pneumonia.

48. **Lesions Produced by Virulent Streptococci.**—The several investigations which Wollstein and Meltzer have carried out seem to show conclusively that in general the streptococcus causes a lobular pneumonia which, besides the leukocytic intra-alveolar exudation, is characterized by a leukocytic infiltration of the lung framework, and that the pneumococcus causes a lobar pneumonia, which is practically free from leukocytic infiltration of the interstitial tissue of the lung. Furthermore, a virulent pneumococcus causes a lesion in which fibrin is a prominent element in the exudate and that element distinguishes the exudate sharply from the exudate of the lesion caused by a virulent streptococcus in which fibrin is present only in moderate amount. It distinguishes it in a still more striking manner from the exudates of the lesions caused by nonvirulent pneumococci or streptococci, in which fibrin is present only in very small amounts. It seems that the formation of fibrin is connected in some specific way with the pneumococcus on the one hand, and with the virulence of the organism on the other. For even with the relatively small amounts of fibrin present in the exudates of lesions caused by the streptococcus there is a perceptible difference in the quantity according to the virulence of the organism. Whether fibrin is a means which enhances virulence, or whether it is a reaction product against it, the authors' experiments so far do not entitle them to discuss.

49. **Disturbances of Heart-Beats in Dog.**—Robinson and Auer found that anaphylactic shock in the dog, caused by the intravenous injection of horse-serum into sensitized animals, may produce definite cardiac disturbances which are revealed by the electrocardiogram. These cardiac changes consist of disturbances in conduction of the heart impulses, abnormalities in the ventricular contractions, and other unusual disturbances of the mechanism of the heart-beat. They come on very quickly after the injection of serum and may be of short duration, and are not obtained during anti-anaphylaxis. They are not the result of the marked fall in blood-pressure which

occurs, nor does the central cardiac inhibitory mechanism play a part in their production. These cardiac disturbances apparently are a definite primary expression of anaphylactic shock in the dog. The right ventricle seems to be more affected than the left.

50. **Cultivation of Trachoma Bodies.**—An organism was isolated by Noguchi and Cohen and studied in pure cultures from cases of conjunctivitis accompanied by the so-called trachoma body inclusions, as well as from a case of old trachoma without inclusions. This organism was not found in the cultures made from other forms of conjunctivitis in which the inclusions were absent. The organism presents the morphologic features characteristic of so-called trachoma bodies. It undergoes an early transformation, during which the forms known as initial bodies appear, and a later change, during which forms resembling elementary granules arise, while certain intermediate forms between these occur simultaneously. No definite cell inclusions could be produced in monkeys by inoculating pure cultures of the organism.

52. **Comparative Viability of Pneumococci.**—According to Gillespie, pneumococci, when freshly isolated from the body, are able to live and multiply when a small number of them are inoculated into a small amount of broth. If, however, the inoculations are made in large amounts of broth, many more bacteria must be inoculated in order that they may grow. It requires much smaller numbers of pneumococci to start a growth on agar than are required to start a growth in broth. This predilection for solid medium disappears when the bacteria are grown for some time outside the body. This phenomenon is not dependent on differences in chemical composition between the two media employed or on the presence of more available oxygen in one case than in the other. Gillespie suggests that it is probably dependent entirely on physical differences in the two kinds of media, and bears some relation to the differences in possibilities for diffusion in the two media.

Laryngoscope, St. Louis

October, XXIII, No. 10, pp. 961-1040

55 Use of Normal Horse-Serum as Means of Controlling Hemorrhage in Oto-Laryngology. M. A. Goldstein, St. Louis.
56 Hiss Leukocyte Extract in Complications of Nasal and Aural Surgery. W. H. Haskin, New York.
57 Case of Nasal Polypi Involving Orbit, Frontal Sinus and Anterior Fossa of Skull. W. R. Chamberlin, Cleveland.
58 New and Efficient Treatment of Atrophic Rhinitis. K. K. Wheelock, Ft. Wayne, Ind.
59 Influence of Sounds of Different Pitch, Duration and Intensity in Production of Auditory Fatigue. W. A. Wells, Washington, D. C.
60 Sub-Periosteal Temporal Abscess of Otitic Origin without Intra-Osseous Suppuration. H. Luc, Paris, France.
61 Glio-Sarcoma of Left Lobe of Cerebellum, Giving External Symptoms of Mastoiditis. J. F. McCaw, Watertown, N. Y.
62 Use of Gauze Packing in Ear Canal. M. D. Stevenson, Akron, O.

Medical Record, New York

November 8, LXXXIV, No. 19, pp. 829-874

63 Neurovascular Gangrene. M. D. Bloomfield, Philadelphia.
64 Neuroses and Psychoneuroses of Children: Mode of Development and Treatment. B. Rosenbluth, New York.
65 Laryngeal Cases. W. F. Chappel, New York.
66 Methods in Joint Diagnosis. W. S. Thomas, New York.
67 Is Sterilization Destined To Be Social Menace? G. F. Lydston, Chicago.
68 Anatomy of Uterine-Pelvic Support. J. W. Winston, Norfolk, Va.
69 High Eosinophil Percentage of Unexplained Origin. E. Amberg, Detroit, Mich.

Michigan State Medical Society Journal, Grand Rapids

November, XII, No. 11, 569-634

70 Syphilis with Special Reference to Value of Salvarsan and Neosalvarsan in Its Treatment. A. P. Biddle, Detroit.
71 Uterine Myoma and Malignancy. W. P. Manton, Detroit.
72 *Roentgenoscopy in Recognition of Pyloric and Duodenum Ulcer; New Sign of Duodenal Ulcer. J. T. Case, Battle Creek.
73 Direct Blood-Transfusion. J. W. Vaughan, Detroit.
74 Ileus. A. I. Lawbaugh, Calumet.
75 Fever: What It Is, and Its Significance as Symptom. J. H. Dempster, Detroit.
76 Tuberculous Peritonitis. D. E. Robinson and W. L. Finton, Jackson.
77 Present Status of Salvarsan in Treatment of Syphilis. R. C. Jamieson, Detroit.
78 Case of Multiple Intra-Uterine Fractures. D. M. Cowie, Ann Arbor.
79 Three Cases of Secondary Syphilis. J. H. Stokes, Ann Arbor.
80 Two Cases of Carcinoma of Prostate. I. D. Loree, Ann Arbor.
81 Addison's Disease without Pigmentation: Report of Case with Necropsy. H. B. Schmidt, Ann Arbor.

72. **Roentgenoscopy in Pyloric and Duodenal Ulcer.**—Spastic hour-glass stomach is described by Case as a sign of duodenal ulcer. He reports sixteen operated cases of duodenal ulceration in which this spastic indrawing, high up on the greater curvature, was noted. In a number of other cases of duodenal ulceration (operated) no spastic indrawing was observed. In at least two other cases, the patient was examined on three successive mornings. On the first and third mornings, the spastic indrawing was noted. On the second morning, although the patient was observed repeatedly, no such spastic indrawing could be seen. In differentiating between a spasm due to gastric ulcer and spasm due to duodenal ulcer, Case has observed that in duodenal ulcer, there is not a point of pain on pressure over the lesser curvature corresponding to the level of the spastic indrawing; on the contrary, there is pain on pressure over the duodenum; and manipulation of the duodenal region increases the depth of the spastic indrawing. This spastic manifestation, however, has also been observed in one case of exophthalmic goiter and in some cases of appendicitis and in at least half a dozen cases of gall-stones in which, at operation, the surgeon was unable to find any duodenal or gastric ulcer.

Military Surgeon, Washington, D. C.

November, XXXIII, No. 5, pp. 401-502

82 Greatest Battle of the War—Gettysburg. L. C. Duncan, U. S. Army.
83 What Would Be Ideal Relationship of Hospital Ship to Fleet from Standpoint of Hospital Ship? M. F. Gates, U. S. Navy.
84 Field Hospital in Peace and War. H. S. Bakatel, U. S. Army.
85 United States Marine Hospital as Public Health Factor. J. R. Hurley, U. S. Public Health Service.

Mississippi Medical Monthly, Vicksburg

November, XVIII, No. 7, pp. 127-146

86 Carriers. H. D. King, New Orleans.
87 Physician's Part in Child Training. M. Caraway, Gulfport.
88 "Healta and Hygiene." M. Stewart, Biloxi.
89 Plumbism of Gunshot Wounds. T. F. Clay, Tutwiler.

New Orleans Medical and Surgical Journal

November, LXVI, No. 5, pp. 343-430

90 Surgery of Exophthalmic Goiter. J. M. Batchelor, New Orleans.
91 Medical Aspects of Exophthalmic Goiter. H. P. Jones, New Orleans.
92 Hysteria. F. C. Bennett, Monroe, La.
93 Epidemiologic Philosophies. H. D. King, New Orleans.
94 *Mechanical Device for Blood-Vessel Anastomosis. Christian and Sanderson, Shreveport, La.
95 *Transmission of Pellagra from Man to Monkey. W. H. Harris, New Orleans.

94. **Device for Blood-Vessel Anastomosis.**—Two metal rings and a holder are used by Christian and Sanderson. The thickness of the rings varies with their diameter, but even the largest size is not thicker than the lead in an ordinary pencil. The inside diameter of the rings corresponds to the outside diameter of the vessel being operated on. From one lateral surface of each ring project five or six very small bearded points, not longer than 1/16 to 1/8 of an inch. Short pieces of a dentist's brooch make admirable points. Two pieces of small, pliable wire ¼ inch long project out from opposite sides of the convex border. The holder is an instrument similar to a small dressing forcep, with the simplest pin-lock, so that two parts may be attached or detached at any degree of opening of the blades. The tip of each half of the holder is made with a clip and slip-cuff, so that a ring of any size may be held firmly, the ring being held edgewise. Using a holder, the ring is passed over the cut end of the vessel, which is then everted and pinned to the ring by the use of a dissecting forcep or the finger tip; the little bearded points holding it nicely. The other cut end is likewise everted and pinned to the other ring. The two parts of the holder are now fitted together and closed and locked, which brings the rings into perfect apposition and with any degree of pressure desired. A twist of the soft wire binders completes the anastomosis and the holders are removed.

95. **Transmission of Pellagra.**—In July, 1910, a typical, fatal case of pellagra presented itself for necropsy to Harris. The necropsy showed only lesions consistent with pellagra, and no other evidences of concomitant disease were present. Portions of the brain and cord, and the lesions of the gastro-intestinal tract and skin were collected. Emulsions were prepared and Berkefeld filtrates derived therefrom. These were inoculated in large quantities subcutaneously, intravenously and intracranially. After an unexpectedly long period of incubation this animal developed clinical signs and symptoms in accord with those of pellagra, and finally died. At necropsy no other causative factor for death, aside from the lesions found in fatal pellagra, was present. Microscopic study corroborated the gross findings, and the skin especially presented the hyperkeratosis and pigmentation identical with that found in the skin in human pellagra.

The experiment was not repeated until a similar typical, fatal human case became available. In this instance the ileum showed especially clear-cut lesions, presenting marked hyperemia, a mucous exudate and miliary ulcerations. These areas especially were selected and formed the greater part of the emulsion. Injections were given subcutaneously, intravenously and intracranially of a filtrate of this mixture procured through a Berkefeld No. N. Two months later this monkey was reinoculated in a similar manner and with similar materials. After two months of observation he developed a diarrhea, inflammation of the tongue, loss of appetite and presented erythematous skin lesions over the bridge of the nose, which spread in wing-like manner over the cheeks and under the eyes. He became emaciated and listless. Lesions, characterized especially by their symmetry of location and shape, developed on the conchae of both ears, the shoulders, arms and dorsal surfaces of the hands. These gradually became pigmented, assuming a deep brown color, and desquamation in scales and placques finally occurred. Across the neck, just on a line with the clavicles, a band-like lesion developed similar to those already described, and gradually merged into the lesions on the shoulders. The fact that the intestine formed the greater part of the filtrate used in this last experiment suggests the possibility that the stools may play some part in the transmission of the disease.

New York Medical Journal

November 8, XCVIII, No. 19, pp. 897-944

96 *Dangers and Disadvantages of Spinal Anesthesia. W. W. Babcock, Philadelphia.
97 Preventive Medicine and Family Doctor. A. H. Wright, Toronto.
98 Surgical Experiences during Last Servian-Bulgarian War. R. J. Behan, Pittsburgh.
99 Case of Fracture of Pelvis in Child Aged Seven. P. G. Skillern, Philadelphia.
100 Infantile Paralysis Affecting Lower Extremities: Its Surgical Treatment and Possibilities of Cure. E. P. Magruder, Washington, D. C.
101 Conclusions Drawn from Freudian School. M. Solomon, Chicago.
102 Blood Ptosis. C. W. Crampton, New York.
103 Reflex or Protective Phenomena of Angina Pectoris. W. J. Pilley, New York.
104 Supplementary or Accessory Placenta. A. Sterling, Philadelphia.

96. **Spinal Anesthesia.**—In Babcock's experience ether and spinal anesthesia have been about equally dangerous, ether from exigencies compelling a profound narcosis or an imperfectly trained anesthetist; spinal anesthesia from an unwise selection of patients and an imperfect knowledge as to the physiologic action of the drug. With careless or unskilled use, Babcock says, spinal anesthesia is doubtless much more dangerous than ether. The morbidity of spinal anesthesia as expressed by nausea, vomiting, headache, backache, post-operative pain, and albuminuria is less than that from ether. Ocular palsy may result from spinal anesthesia where contaminated or deteriorated solutions are used. A lateral deviation of the needle with injury to a nerve root may be followed by severe neuritis and secondary palsy. Secondary degeneration of the spinal cord from the chemical action of stovain, properly introduced in human beings, for purposes of spinal anesthesia is doubted.

Functional or neurotic symptoms occur after spinal anesthesia as they do after etherization, and may, to the annoyance of the surgeon, be attributed by the patient to the injection. If a steel needle be used it may be broken under the skin during the injection. Danger symptoms may follow if the patient be moved immediately after the injection or if the proper posture to prevent the anesthetic from reaching the upper nerve roots be not maintained for at least one-half hour after the injection. Repeated intradural injections seem to be harmless. Babcock warns that spinal anesthesia is dangerous in circulatory subtension, conditions greatly depressing the respiratory centers, and shock, collapse, advanced myocardial disease, and large intrathoracic effusions. It is more dangerous for operations on the upper abdomen than those on the lower. It does not obviate the danger of sudden cardiac arrest in operations for large uterine fibroids.

Babcock insists that the newer methods of anesthesia, including spinal anesthesia, nitrous oxid oxygen, intravenous anesthesia should have their use restricted to selected patients by those who have properly qualified themselves. If the patient cannot be properly watched for one hour after the injection, if the operator does not understand the dose and mode of diffusion of the drug, or if he is unprepared to meet emergencies, then spinal anesthesia should not be employed For general indiscriminate use ether remains the standard anesthetic despite its many drawbacks.

Philippine Journal of Science, Manila

June, VIII, No. 3, pp. 157-252

105 *Intestinal Parasites Encountered in 500 Autopsies, with Report of Cases. B. C. Crowell and R. W. Hammack, Manila.
106 Beriberi-Preventing Substances or Vitamines Contained in Rice Polishings. E. B. Vedder and R. R. Williams, Manila.
107 Biology of Tabanus Striatus Fabricus, Horsefly of Philippines. M. B. Mitzmain, Manila.
108 Mechanical Transmission of Surra by Tabanus Striatus Fabricus. M. B. Mitzmain, Manila.
109 *Axillary Teratoma. P. K. Gilman, Manila.
110 Strongles in Philippines. W. H. Boynton, Manila.
111 Influence of Atmospheric Temperature on Spread of Pneumonic Plague. O. Teague, New York.

August, VIII, No. 4, pp. 253-330

112 Experimental Entamebic Dysentery. E. L. Walker and A. W. Sellards, Manila.

105. **Intestinal Parasites.**—In a series of 500 consecutive necropsies on people of all ages in Manila, *Ascaris lumbricoides* occurred in 41.2 per cent., *Trichuris trichiura* in 34.4 per cent., hookworm in 16.6 per cent., *Taenia saginata* in 0.2 per cent., *Cysticercus cellulosae* in 0.2 per cent., *Oxyuris* in 1 per cent., *Clonorchis sinensis* in 0.4 per cent., *Schistosoma japonicum* in 0.2 per cent., malaria in 5 per cent., and amebic colitis in 5 per cent. The manifestations of ascariasis have been the presence of ascaris in the liver as the result of both antemortem and post-mortem wanderings, and its possible action as the exciting factor in one case of widespread hemorrhages. One clinical case of *ascaris* in the appendix has been encountered. *Ascaris* has not been found less frequent in febrile than in other cases. Trichuriasis occurred in 33.9 per cent. of the males and 35.4 per cent. of the females; 15.53 per cent. of the patients under 15 years of age and 40.1 per cent. of the patients above that age harbored *trichuris*. Two clinical cases of appendicitis in which *trichuris* was found in the appendix have been encountered. One case has been described exemplifying the frequently encountered hemorrhages in the submucosa of the intestine associated with the presence of the hookworm. One *Taenia saginata* was the only tapeworm encountered. The infrequence of *Taenia solium* in human cases as compared with the great frequence of *cysticercus* in hogs in the Philippines has been deemed noteworthy. One case of *Cysticercus cellulosae* in the human cadaver has been reported in detail.

109. **Axillary Teratoma.**—In Gilman's case, a swelling was noted under the right arm shortly after birth. This swelling increased slowly but steadily in each diameter. At the age of 7 the patient had a slight fever and the tumor became red and increased noticeably in size. At that time, occupying the right axilla and limiting considerably the movements of the

arm in all directions was a tumor measuring about 12 cm. in diameter, with a general spherical form. The growth as a whole was soft and elastic and movable, although evidently attached to the apex of the axilla and upper portions of the chest wall; was not tender nor painful. The skin over the mass was more or less adherent in several linear areas, one of these on the external surface being reddened and inflamed. The vessels of the skin over the growth showed great distention and considerable venous stasis. The tumor evidently contained fluid under the considerable tension, and over the posterior portion of the wall of the cyst gave a sensation as though considerable fibrous thickening had taken place with probably a deposition of some mineral salts. It was removed. The growth shelled out readily over nearly the entire surface, difficulty being experienced only in the apex of the axilla where the artery, several branches of the vein, and most of the nerve branches were enveloped in the fibrous capsule of the cyst and over the fifth rib, the periosteum of which was intimately connected with the wall. A small portion of the fluid of the cyst was aspirated immediately after the specimen was received, and was seen to be clear and yellowish in color. The pathologic examination showed it to be a teratoma of mesodermal origin or autochthonous monophyllic teratoblastoma of mesodermal origin.

Public Health Journal, Toronto

October, IV, No. 10, pp. 541-588

113 Disposal of Sewage and Garbage. J. W. S. McCullough, Toronto.
114 Harbor of Indifference. G. D. Porter, Regina, Sask.
115 Sanitary Surveys of Rivers. J. R. Malek, Regina, Sask.
116 Relation of Social Survey to Public Health Authorities. F. Schneider, New York.
117 Leaves from Inspector's Note Book. H. D. Mathias, Regina, Sask.
118 Charities and Corrections. J. E. Starr, Toronto.

South Carolina Medical Association Journal, Seneca

October, IX, No. 10, pp. 268-298

119 Extra-Uterine Full Term Operation; Recovery. R. T. Ferguson, Gaffney.
120 Wood Alcohol. C. W. Kollock, Charleston.
121 Tetanus Prophylaxis. G. A. Neuffer, Abbeville.
122 Medical Inspection of Schools. T. Maddox, Union.

Southern Medical Journal, Nashville, Tenn.

November, VI, No. 11, pp. 705-762

123 Recent Advances in Methods of Administration of General Anesthetics. C. H. Cocke, Asheville, N. C.
124 Endometritis. W. F. Shallenberger, Atlanta, Ga.
125 Relation of Physician to Future Generations. E. A. Rowland, Shawnee, Okla.
126 Drugging Habit of Busy Practitioner. B. B. Simms, Talladega, Ala.
127 Work of County Health Officer in Alabama. R. M. Davis, Florence, Ala.
128 Cardioptosis—Report of Case. P. T. Fleming, Enterprise, Ala.
129 Propagation of Tertian Malaria in Mountains of North Carolina, Henderson County in Particular. W. B. Howe, Hendersonville, N. C.
130 Plea for Prevention of Disease. Nature's Law—Survival of Fittest. C. G. Roehr, Fort Pierce, Fla.
131 Paper Clip in Trachea—Successful Removal. R. McKinney, Memphis, Tenn.
132 Bone and Joint Cases. M. Hoke, Atlanta, Ga.
133 Open Treatment of Fractures. H. P. Cole, Mobile, Ala.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 25, II, No. 2756, pp. 1049-1124

1 History of Invention and Discovery of Spectacles. G. H. Oliver.
2 Influence of Time on Red Glass. C. H. Würtzen.
3 *Operation for Inducing Artificial Pneumothorax. H. deC. Woodcock.
4 Case of Influenzal Meningitis. A. Ross and A. E. Moore.
5 *Effects of Emetine on Abscess of Liver. R. L. Spittel.
6 Hemorrhage in Newborn Infant. S. D. Clippingdale.
7 Diagnosis and Treatment of Primary Carcinoma of Stomach. G. H. Makins.
8 Experimental Observations on Cause of Death in Acute Intestinal Obstruction. D. P. D. Wilkie.
9 *Radium and Inoperable Cancer. A. A. Warden.
10 Chronic Interstitial Enteritis. T. K. Dalziel.
11 Diagnosis and Treatment of Injuries of Knee-Joint Other than Fractures and Dislocations. A. M. Martin and A. J. Walton.
12 Treatment of Compound and Comminuted Fractures. E. W. H. Groves.
13 Prostatism—Pathologic Basis of Operative Treatment. H. Wade.
14 Neuralgia of Twelfth Dorsal Nerve Simulating Visceral Lesions. T. K. Dalziel.
15 Surgical Treatment of Intestinal Stasis. H. J. Paterson.
16 Case of Retroperitoneal Fibroma, Weighing 34¾ Pounds, Successfully Removed. C. P. Childe.

3. Operation for Inducing Artificial Pneumothorax.—Woodcock has tried both puncture and the incision method, and prefers the puncture. The nitrogen is generated from the air as required, by means of a pyrogallate solution. It can be warmed by filling with hot water the bottle into which it is to pass; to maintain the heat a hot water jacket may be used. It is an additional precaution against sepsis to fill this bottle with a solution of hydrargyrum perchloridum, 1 in 5,000. The manometer is so constructed that it acts as a safety valve, allowing no greater pressure than 10 in. of water. It permits of direct communication with the patient, not merely through the nitrogen jar, so that the actual pressure within the pleura can from time to time be controlled.

5. Effects of Emetine on Abscess of Liver.—The noteworthy points of this case are: The cavity in the liver, which at the time of operation contained 1½ pints of pus, was found nine days later to have a capacity for only 4 ounces, while a very rapid advance of fibrosis was proceeding through a thickness of tissue that measured ¾ inch. Several separate foci of pus had been rendered inert and crystallized into solid, buff-colored islets, which disclosed microsopically the very beginnings of fibrosis. More evacuations of pus and local treatment could not account for this latter phenomenon, even if they did for the former.

9. Radium and Inoperable Cancer.—Warden's conclusions are as follows:

1. Simple obstruction of the intestinal lumen must be clearly distinguished from strangulation. In the latter, death ensues long before the obstruction to the onward passage of intestinal content has become a factor of importance. 2. Simple obstruction high up in the intestine differs from that lower down, chiefly in the great loss of intestinal secretions by vomiting in the former, compared with the latter, where the secretions are reabsorbed above the obstruction. 3. Absorption of poisons from the content of the obstructed intestine is not the leading factor in producing the symptoms of acute ileus. 4. The danger of allowing the content pent up above an obstruction to flood the empty intestine below has probably been exaggerated. 5. Peritonitis plays no part in causing death in the majority of cases of simple intestinal obstruction; in cases of strangulation, however, it may undoubtedly be a factor in the later stages. 6. In all varieties of intestinal obstruction the bowel content is infective. 7. Splanchnic paresis with depletion of the systemic circulation is the main factor in producing the symptom-complex of acute intestinal obstruction. In treating this factor, besides the operative relief of the obstruction, copious subcutaneous infusions of saline and dextrose solutions are of immense value. Clinically, the administration of pituitrin is found to be a valuable adjuvant. 8. The prompt relief given by enterostomy in cases of simple obstruction of the small intestine in the human subject is to be explained, not so much by the relief from toxic absorption as by the breaking of a vicious circle, the intestinal distention causing a paresis of the splanchnic vessels, and vice versa. By relieving the intestinal distention the splanchnic vessels are allowed to regain their tone, and the depletion of the systemic circulation is arrested. 9. The operative treatment of intestinal obstruction should be as conservative as possible; only on imperative indications should the intestinal lumen be opened. The danger of a postoperative peritonitis from the slightest soiling is much greater than that of toxic absorption from a loaded bowel.

Clinical Journal, London

October 1, XLII, No. 26, pp. 401-416

17 Nephroptosis: Its Clinical Significance. W. Billington.
18 Glycosuria. W. L. Brown.
19 Metastasis of Lung Secondary to Sarcoma Uteri Simulating Pneumonia. T. M. Martin.

October 8, No. 27, pp. 417-432

20 Cause and Treatment of Traumatic Ventral Hernia. W. M. Eccles.
21 Carcinoma of Stomach. A. J. Walton.

October 15, No. 28, pp. 433-448

22 Roentgenoscopy of Aneurysm of Thoracic Aorta. M. R. J. Hayes.
23 Significance of Chronic Cough and Wasting in Childhood. E. B. Smith.
24 Surgical Cases. E. M. Corner.

October 22, No. 29, pp. 449-464

25 Clinical and Pathologic Results of Infection of Female Genitalia. F. J. McCann.
26 Pulmonary Triad: Bronchitis, Asthma and Emphysema. W. Calwell.
27 Brachial Pressure Neuritis due to Normal First Thoracic Rib: Its Diagnosis and Treatment by Excision of Rib. J. Morley.

Journal of Tropical Medicine and Hygiene, London

October 15, XVI, No. 20, pp. 77-328

28 Some Experiences of Mountain Sickness in Andes. T. H. Ravenhill.
29 Distribution of Glossina Longipennis (Corti, 1895). A. J. Chalmers and H. H. King.

Lancet, London

October 25, II, No. 4704, pp. 1162-1234

30 Causes and Symptomatology of Impaired Retinal Activity. G. A. Berry.
31 *Symmetrical Necrosis of Cortex of Kidneys. H. D. Rolleston.
32 Effect of Altitude on Blood-Volume. G. Dreyer and E. W. A. Walker.
33 Veronal Poisoning. W. H. Willcox.
34 *Clinical Study of Chief Function of Peritoneum. J. Howell.
35 *Experimental Transmission of Disseminated Sclerosis to Rabbits. W. E. Bullock.

31. **Necrosis of Cortex of Kidneys.**—To the ten cases of symmetrical necrosis of the cortex of the kidneys reported in the literature Rolleston adds the eleventh case. The ages of these eleven patients varied between 22 and 48 years. Nine were multigravidae, one was a primipara, and in one case there was no statement. In one case only was there a live birth and in that instance there were live twins. The exception to the statement that symmetrical necrosis of the renal cortex is a puerperal manifestation is that in very rare instances embolic infarction may be so extensive as to produce this anatomic lesion.

The clinical features are remarkable in resembling in the main those of calculous obstruction of both ureters rather than those usually regarded as characteristic of non-obstructive anuria. Uremic manifestations were absent in some of the reported cases and when present were usually comparatively slight. Dyspnea occurred in three cases. Convulsions are recorded in six cases. But in two out of these six cases the convulsions occurred only before the uterus was emptied and therefore cannot be so distinctly correlated with the anuria as in the other four cases. In two cases convulsions occurred after delivery; in one case both before and after delivery. Of the five cases in which convulsions did not occur the kidneys were previously healthy in three, showed endarteritis without renal fibrosis in one and chronic nephritis in one. Of the six cases in which convulsions occurred the kidneys were previously healthy in two; in one case—a woman of 22, in whom twelve fits occurred before delivery, there was very slight endarteritis only, and in the remaining three cases there was no change. Anuria is a striking feautre in nearly all these cases.

The morbid lesions are remarkable in showing symmetrical necrosis of the renal cortex with thrombosis of the renal vessels supplying the cortex, usually of the interlobular arteries in the middle zone of the cortex. In some of the cases there was a narrow rim of unaltered cortex immediately under the capsule. Its escape appears to depend on the anastomosis between the arteries in the capsule of the kidney and those supplying the perirenal fat, and resembles the condition often seen in ordinary embolic infarction of the kidney.

34. **Chief Function of Peritoneum.**—Recognizing the fact that the chief function of the peritoneum is to combat bacterial invasion, Howell suggests that the symptoms of typhoid are due to the infection of the peritoneal cavity by the *Bacillus typhosus*, the sloughing Peyer's patches being marks of their disputed but victorious passage. A boy's bilious attack, he claims, is due to peritoneal infection, also the summer diarrhea of children. Some of the cases of "vicious circle" after gastrojejunostomy are instances of septic peritonitis. Some of the failures of gastrojejunostomy are due to the fact that the operation has been performed, not on account of organic pyloric obstruction or gastric or duodenal ulceration, but in cases of chronic infection of the peritoneal cavity, the source of which was not found; the poison therefore continuing, the liver and stomach continued their necessary work of excretion. The abdominal incision and manipulation of the viscera, by temporarily draining the peritoneum and causing a fresh sharp effusion of serum, ensured them a short respite. The liver and stomach, he continues, by no means escape themselves scot free in the performance of these vital duties. In cases of acute infection the liver cells, especially those in the outer part of the lobule, on which the greatest stress would fall, show fatty degeneration; in the more chronic forms they die out entirely, and their place is taken by fibrous tissue. Again, the muscular coats of the stomach, constantly bathed in toxic lymph passed into it by the visceral endothelium, would gradually become atonic, causing a chronic dilatation of the organ; sometimes this lymph would actually contain organisms which the peritoneum and omentum had imperfectly dealt with, and these again, during the time that they found themselves in the submucous tissue, would produce necrosis, and begin the mischief of ulceration. In cases of still greater stress on the peritoneum, as in some cases of puerperal fever, ruptured gangrenous gall-bladder, etc., the organisms set up a general condition of acute phlegmonous gastritis.

35. **Transmission of Disseminated Sclerosis.**—Bullock has succeeded in producing paralysis of the limbs in four rabbits out of five by injecting cerebrospinal fluid, withdrawn under rigidly aseptic conditions from a case of disseminated sclerosis, subcutaneously into rabbits. The fluid was found to be potent after exposure to a temperature of 0 C. for fourteen days, and after being filtered through unglazed porcelain. Histologic examination of the spinal cord revealed a complete reproduction of the appearances found in the human subject, viz.: (1) vascular engorgement and fragmentation of the myelin sheath in the early stages; (2) areas of degeneration throughout the cord, demonstrable by the Marchi and Weigert-Pal methods, in the latter stages of the disease. Whether the cerebrospinal fluid obtained from a second case of the disease would have produced paralysis in two wild rabbits or not could not be determined owing to the premature death; in the case of the other two animals the fluid was not potent in producing paralysis. A cat which was inoculated with fluid obtained from the first case remained active and healthy for nine weeks.

If, Bullock says, one assumes that disseminated sclerosis is a definite entity and that the first patient from whom cerebrospinal fluid was obtained was an instance of the disease, one is bound to conclude that the cause of the disease is either a virus (organism) or a water-soluble poison found in the cerebrospinal fluid. While the final demonstration of the first conclusion is not yet obtained the balance of probability lies in its favor. Thus the fact that paralysis occurs from fourteen to twenty-one days after inoculation is fairly strong evidence against a non-living poison. Against all this, however, must be placed the possibility that the disease called disseminated sclerosis is not individual, but that it may be a symptom-complex which may be produced by two or more causes. The fact that the cerebrospinal fluid obtained from the second case failed to cause paralysis in four wild rabbits lends some support to this possibility. One must, however, attach some importance to the fact that wild rabbits were used in these experiments, whereas tame ones were employed in the first.

Archives des Maladies du Coeur, Etc., Paris

October, VI, No. 10, pp. 625-688

36 Retrograde Extra Systoles of the Ventricle. L. Galbiardin.
37 Operative Release of the Pericardium. (De la péricardiolyse dans certaines affections cardiaques ou de la thoracectomie prépéricardique.) H. Delagenière.
38 Roentgenotherapy in Polycythemia. (Maladie de Vaquez.) P. Pagniez and others.
39 Eosinophilia in Filariasis. Marotte and Morvan.

Bulletin de l'Académie de Médecine, Paris

October 7, LXXVII, No. 30, pp. 181-636

40 *Subintrant Angina Pectoris. (Les crises d'angine de poitrine subintrantes.) C. Flessinger.
41 General Spinal Anesthesia. Jonnesco.

40. See Paris Letter in THE JOURNAL, November 1, p. 1642.

Journal de Médecine de Bordeaux

October 12, LXXXIV, No. 41, pp. 655-668

42 *Malformation of the Soft Palate. (Insuffisance vélo-palatine.) E. J. Moure.
43 Sporotrichosis of the Hands. Petges.

October 19, No. 42, pp. 669-684

44 Polyuria. Leuret.

42. **Malformation of the Soft Palate.**—Moure warns that one is liable to do more harm than good by any operation or direct procedure to remedy congenital malformation of the soft palate. The best treatment is by training the child to make the best use of his speech apparatus. Systematic training by an expert in this line is liable to cause great improvement, especially when supplemented by a few applications of massage to the parts as after staphylorrhaphy.

Lyon Chirurgical, Lyons

July, X, No. 1, pp. 1-108

45 *Non-Cancerous Stenosis of the Colon at the Sigmoid Flexure. A. Cade and others.
46 Woody Phlegmon Partially Encircling the Kidney. (Phlegmon péri-néphrétique ligneux.) L. Thevenot.
47 Technic for Exclusion of Pylorus or Duodenum. R. Leriche.

August, No. 2, pp. 109-220

48 *Transplantation of the Kidney. E. Villard and E. Perrin.
49 *Inguinal Access to Hydrocele. V. Gomoiu.
50 Carrel's "Visceral Organism." R. Leriche.

45. **Non-Cancerous Stenosis of the Colon.**—In the case described the symptoms were those of Hirschsprung's disease in a woman of 75, but necropsy disclosed merely stenosis from old inflammatory lesions, possibly tuberculous. True Hirschsprung's disease involves congenital malformation of the colon.

48. **Transplantation of Kidneys.**—Villard and Perrin give an illustrated description of the findings in three dogs after transplanting one of the animal's kidneys to some other point. The operation proved a success in only one instance; the left kidney had been transferred to the neck and connected with the primary carotid artery and the external jugular vein with the ureter sutured to the skin. The kidney kept up its functioning but showed signs of mild inflammation when the animal was killed two months later. It had evidently become infected through the ureter from the skin. A kidney from other dogs was transplanted into the animal in nine other experiments. The results at first were excellent, the kidney functioning nearly normally, but the implanted kidney was absorbed in time or it sloughed away. Attempts to transplant a kidney from a cat to a dog, goat to dog, etc., invariably failed.

49. **Treatment of Hydrocele.**—Gomoiu has applied with excellent and permanent results in twenty-five cases a method of treatment utilizing the inguinal canal. This leaves the scrotum intact and acts exclusively on the direct seat of the lesion in question while the conditions for healing afterward, he says, are ideal. It is easy to work the top of the tumor up into the incision in the inguinal region, evacuate it and evert or excise the vaginalis, and then push the testicle back into its place. It is not necessary to puncture through the scrotum first. He has operated by this inguinal route in fifty-three cases for varicocele, hydrocele, resection of the epididymis or castration. Phocas of Athens has also been using the inguinal route for two years to his constantly increasing satisfaction.

Lyon Médical, Lyons

October 12, XLV, No. 41, pp. 565-612

51 Gas Cysts in the Intestines. F. Barjon and D. Dupasquier.

Presse Médicale, Paris

October 11, XXI, No. 83, pp. 825-836

52 The Amino-Acids in Biology and the Clinic. L. Hugounenq.
53 Chronic Appendicitis Causing Limping and Mistaken for Right Hip-Joint Disease; Three Cases. (Appendicite claudicante ou coxopathie?) Rochard and Stern.

October 15, No. 84, pp. 837-844

54 Gastro-Enterostomy with the Jaboulay Button; Twenty-Eight Cases. A. Huguier and R. Simonnot.

Revue de Chirurgie, Paris

October, XXXIII, No. 10, pp. 537-680

55 *Misplaced Normal Kidneys. (Reins ectopiques congénitaux non pathologiques.) F. Lejars and H. Rubens-Duval.
56 *Bending of the Radius. (Radius curvus.) A. Binet and M. Mutel.
57 The Temperature in Tissues during Application of Superheated Air, Diathermia or Electrocoagulation. M. Grunspan.
58 *Operative Treatment of Vicious Ankylosis of the Knee. P. Brocq. To be continued.

55. **Congenital Misplaced Kidneys.**—Lejars and Duval discuss the mistakes in diagnosis for which a displaced kidney may be responsible when the anomaly causes no symptoms. They have encountered two such cases recently, the displacement of the kidney being unsuspected before the operation. In one the operation was done for torsion of a pedunculated fibroma in front of the uterus and a tumor found in front of the spine proved to be a kidney, somewhat atrophied and sclerous, which was safely removed with the fibroma below. In the second case the operation was done for ileus supposed to be the work of a neoplasm, but the growth seen on roentgenoscopy proved to be the kidney in the left iliac fossa, compressing the intestine. In other cases on record the displaced kidney interfered with menstruation or was the seat of pains during the menstrual congestion. In others the displacement of the kidney was masked by disease in the uterine adnexa. The main point in diagnosing is to bear in mind the possibility of a displaced silent kidney. In eleven cases on record the diagnosis was correctly made. The discovery of other malformations is an aid to the diagnosis of dystopic kidney. Also the discovery of a depression suggesting a hilus at some point in an abdominal tumor seen on roentgenoscopy, especially when pulsation can be palpated at this depression. There is always a possibility that a tumor may prove to be a supernumerary kidney, such as MacArthur has reported. Other aids in diagnosis are the difference in the depth to which the ureter catheters can be introduced, and the albuminuria and red corpuscles found in the urine half an hour after the "tumor" has been palpated and lightly kneaded; if there has been preceding albuminuria, it is increased under this. This increase two, three or eleven-fold in the albuminuria permitted recognition of the misplaced kidney in four cases in Fedoroff's service at St. Petersburg. If the kidney is atrophied and sclerous and the existence of an apparently sound mate is determined, nephrectomy can be done at once when the displaced kidney is encountered as an operative surprise. But under other circumstances it is better to postpone the nephrectomy until the functional capacity of the other kidney can be ascertained. In three cases on record necropsy showed that there was no second kidney.

56. **Bending of the Radius.**—Binet and Mutel give an illustrated description of a case of radius curvus and expatiate on the ease, simplicity and perfect results of operative correction of the deformity when the bone is cut across slanting and forcibly straightened. The correction is maintained by a plaster gauntlet, the hand turned toward the ulna, the thumb upward, with extreme extension of the hand on the wrist. If these points are observed the deformity can be corrected without shortening of the arm.

58. **Operative Treatment of Crippled Knee.**—This instalment of Brocq's long article discusses ankylosis of the knee with flexion, and means to correct the deformity without attempting to put an end to the ankylosis. Various other forms of crippling of the knee are also discussed and the attempts on record of grafting whole joints. Fifteen illustrations accompany this part of the monograph.

Archiv für Gynäkologie, Berlin

C, No. 3, pp. 455-862. Last indexed Oct. 11, p. 1410

59 *Disinfection of the Vulva during Labor Reduces Germ Content of the Puerperal Uterus. L. Leidenius.
60 Nitrogen Extractives in the Uterine Muscle. (Extraktivstickstoff in der glatten Muskulatur des Uterus.) A. F. v. Winiwarter.
61 Management of Later Puerperium. (Klinische Untersuchungen zur Beurteilung des Spätwochenbettes, mit bes. Berücksichtigung des Einflusses des Frühaufstehens.) L. Knapp.
62 Laceration of Umbilical Cord. (Nabelschnurzerreissung intra partum.) O. Nebesky.
63 Experimental Research on Action on Genital Organs of Extracts Made from Placenta and Female Genital Organs. O. Fellner.

59. **Local Disinfection of Parturient.**—Leidenius devotes over seventy-five pages to the account of his experiments and experiences at Helsingfors, with tabulated details of conditions in fifty cases in which the child was born without any attempt at disinfection and six other groups in which various methods were applied. The impression from the total 150 cases is decidedly in favor of efficient disinfection. The ordinary methods in vogue do little good, but if the vagina is rinsed out with boiled water and a weak disinfectant and the vulva is shaved and painted with tincture of iodin, the danger of infection later is materially reduced. Prophylactic vagin-

douches are particularly useful when they can be applied with aseptic technic.

Archiv für Verdauungs-Krankheiten, Berlin

October, XIX, No. 5, pp. 501-662

64 *Perforated Diverticulum in the Esophagus. F. Egle.
65 *Percussion of the Liver (Zur perkutorischen Untersuchungsmethode der Leber.) W. Orlowski.
66 *Multiple Cancer of the Intestines. E. v. Muralt.
67 *Ichthyol for Lavage of the Stomach. (Verwendung des Ichthyols zu Magen-Spülungen.) A. Conti.
68 *Estimation of Functional Capacity of the Pancreas. M. Lifschütz.
69 *Determination of Free Hydrochloric Acid in the Stomach without the Stomach Tube. (Beiträge zur Untersuchung des Mageninhalts ohne Sonde.) H. Friedrich.

64. **Perforation of Esophagus Diverticulum.**—In the two cases reported by Egle, the diverticulum had evidently developed from traction by shriveling processes in the mediastinum. In each instance the diverticulum developed in the anterior wall of the esophagus above the bifurcation and caused no symptoms of any kind until perforation occurred, entailing suppuration in the mediastinal tissues, resulting in purulent pericarditis in one case and in perforation of the trachea and aspiration pneumonia in the other, both fatal. In the latter case there was a cancer at another point in the esophagus which suggests that possibly the cancer may have originated in another diverticulum not recognized at necropsy.

65. **Percussion of the Liver.**—Orlowski calls attention to the instructive findings possible when threshold or orthopercussion is applied to the liver, that is, percussing so lightly that the findings are just at the threshold of audibility. The percussion is done in the sagittal direction. He has thus examined the liver in 288 men and 212 women, applying the percussion about 1,200 times in all. In 892 investigations, the lower margin of the liver as thus outlined corresponded with the palpation or operation findings in 83.5 per cent. of the cases. The percussion was applied in connection with other diagnostic measures. The various factors, such as filled bowel, etc., liable to interfere with the percussion findings are discussed.

66. **Multiple Cancers in Boy.**—The boy of 13 had had symptoms four years before which suggested tuberculous peritonitis at the time. Later ileus developed and the boy died from increasing weakness the second day after the operation. Necropsy revealed several cancers in the intestines, the largest in the ascending colon, the ileum and jejunum studded with about forty nodules; all the growths were typical cylinder-celled cancer.

67. **Advantages of Ichthyol for Rinsing Out the Stomach.**—Conti has been using for ten years a 10 per thousand solution of ichthyol for rinsing out the stomach in case of gastritis or malignant disease, and has found the results very satisfactory. He poured the fluid into the stomach and left it there for fifteen to twenty-five or thirty minutes, leaving the stomach-tube in place in the meanwhile. The patients displayed a surprising tolerance for it, and the toxic coefficient of the stomach content was materially modified by the ichthyol, as he explains in detail.

68. **Tests of Functional Capacity of the Pancreas.**—Lifschütz applied various tests to forty-two persons to determine the functional capacity of the pancreas, and devotes over forty pages to description of the findings and the lessons to be learned therefrom. The findings in the stool were more instructive and reliable than those in the gastric juice after an oil test-breakfast, but the best plan is to combine the two methods. Negative response to the casein digestion test applied to the stool is more instructive than a positive result, as erepsin and certain bacterial ferments are able to digest casein to some extent. Vigorous digestion of casein by stool extract is strong testimony in favor of normal functioning on the part of the pancreas. He found no essential difference between the action on albumin of trypsin, erepsin and certain bacterial ferments—all of these digest casein, but erepsin has no action on egg albumin.

69. **Examination of Stomach Content Without the Stomach-Tube.**—Friedrich's method of testing conditions in regard to acidity in the stomach by means of a swallowed medicated thread, was described in THE JOURNAL, Sept. 14, 1913, p. 911. He here states that time has confirmed the simplicity and reliability of the method, and has shown further that it is possible by this means to detect the presence of catarrh of the stomach by the irregular staining of the thread. When merely the tip of the thread is stained, this indicates excessive motor functioning, as it shows that there is but little content left in the organ. Irregularity in the staining shows that the stomach contents have not been thoroughly mixed, or else that the stomach contents are mixed with mucus.

Berliner klinische Wochenschrift

October 13, L, No. 41, pp. 1881-1928

70 *Bubonic Plague and Rat Fleas. (Wichtigkeit des "Rattenflohes" zur Feststellung der Verbreitung von Pest.) S. Kitasato.
71 Paralytic Dementia and Syphilis. H. Noguchi (New York).
72 Tardy Suppuration after Appendicitis. E. Melchior.
73 Chronic Deficiency in Hydrochloric Acid. (Therapie der chronischen Anacidität.) M. Hirschberg.
74 Electrotherapy of Pathologic Blood-Pressure. F. H. Humphris (London).
75 Lymphuria and Its Clinical Standing. H. Stern.
76 *Eclampsia Four Times. (Viermaliges Auftreten der Eklampsie bei derselben Patientin.) C. Holste.
77 Abderhalden's Serodiagnosis of Pregnancy. F. Ebeler and E. Lohnberg.
78 Physiotherapy of Functional Vocal Cord Disturbance. T. S. Flatau.
79 Research on Rabbit Heart. (Einfluss experimenteller Verletzungen des Conus arteriosus dexter, wie des rechten und linken Vorhofes auf die Kurve des Elektrocardiograms bei Kaninchen.) M. Tschernorutzky.
80 Test for Iodin in the Urine. J. Becker.
81 *Possible Dangers of Mercurial Treatment. (Die Gefahren der Quecksilberkuren und ihre Verhütung.) W. Wolffenstein.

70. **The Rat Flea in Transmission of Plague.**—Kitasato confirms the efficacy of the method of collecting rat fleas by turning guinea-pigs loose in the infected buildings. At Kobe 3,376 guinea-pigs were thus turned loose for twenty-four hours in 774 houses, warehouses, ships, etc., in a period of seventeen months after the small epidemic of plague there in 1909. He emphasizes the importance of the rat fleas in the transmission of plague and the advantages of this method of detecting infection of the fleas. The findings were particularly instructive in forty-two houses which had been supposedly thoroughly disinfected after cases of plague. In eleven of forty-two houses of this kind the guinea-pigs collected infected fleas, showing that the disinfection had not been complete. In thirty-six other houses all the rats had been exterminated and the buildings made absolutely rat-proof; 122 guinea-pigs were turned loose in these houses, but only one flea was found and this showed no signs of infection. Building the rats out is thus shown to be the most effectual means of rooting out the plague.

76. **Recurrence of Eclampsia.**—Holste's patient was an otherwise healthy woman who developed eclampsia near term at her second pregnancy, at the seventh month of the second, at the fourth month of the third pregnancy and just before delivery at the fourth. During the last pregnancy the urine was examined repeatedly for albumin, always with negative results, and she seemed in perfect health. Then the eclampsia developed, extremely severe, but it gradually subsided after the fifty-first convulsion. No influence on the convulsions was noted from the forced delivery but they gradually subsided the following day. With the first eclampsia the convulsions ceased after forced delivery. The second time Stroganoff's prophylactic method was applied with perfect success. At the third appearance of the eclampsia this treatment failed completely, and only forced delivery brought a turn for the better. The fourth attack persisted unmodified by the Stroganoff method and also by forced delivery. The patient succumbed to pneumonia after the subsidence of the eclampsia. Nothing was found to explain the peculiar features of this case; no signs of chronic inflammation of any organ.

81. **Possible Dangers of Mercurial Treatment.**—Wolffenstein has found records in the literature since 1883, of 108 fatalities from the use of mercury. In only one case had the mercury been given by the mouth—fatal intoxication from five pills of 0.06 gm. mercury each. One fatality followed inhalation of

the mercury by Welander's sack method. Nine deaths are credited to mercurial oil *(Merkuriolöl)* and ten to mercuric salicylate; in one of the latter group there must have been an absolute idiosyncrasy, as a single injection of 0.05 gm. proved fatal. Seven fatalities are recorded from injection of the soluble preparations and seventy-eight from the insoluble. No less than thirty-one of the fatalities occurred with grey oil, and nineteen with inunctions. He emphasizes the importance of examining the urine before starting a course of mercurial treatment, and repeating the examination once a week at least during the course. The various forms in which mercurial intoxication can be manifested are discussed and a case of gangrene of the vagina from this cause is reported, the third on record. The mercury had been given subcutaneously, the salicylate and calomel in moderate doses to a low total. The patient was a young woman with the secondary phase of syphilis; stomatitis developed and the entire walls of the vagina sloughed off, with fever, but final recovery. Wechselmann has recently suggested that possibly some of the mishaps attributed to salvarsan were in reality the work of the mercury given with or before it.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 20-27, XLIII, Nos. 38-39, pp. 1185-1248

82 Mountain Climate in Treatment of Pulmonary Tuberculosis; Indications and Contra-Indications. H. Philippi and F. Egger.

October 4, No. 40, pp. 1249-1280

83 Digestive Incompetency in Two Children of 2 and 6. (Ueber schwere Verdauungsinsuffizienz jenseits des Säuglingsalters.) E. Wieland.

Deutsche medizinische Wochenschrift, Berlin

October 16, XXXIX, No. 42, pp. 2025-2072

84 *Present Status of Rabies. (Lyssaforschung.) J. Koch.
85 *Abderhalden's Serodiagnosis in Psychiatry. R. Bundschuh and H. Roemer.
86 True Tubercle Bacilli not Often Present in the Blood. C. Moewes and F. Bräutigam.
87 *Tubercle Bacilli in Skin Tuberculosis. (Nachweis von Tuberkelbazillen bei Tuberkulose der Haut, bes. des Gesichts.) C. Stern.
88 *Degeneration of the Liver during Pregnancy. P. Heinrichsdorff.
89 *Latent Erysipelas and Toxic Eczema. F. Berger.
90 Patent Botalli's Duct; Three Cases with Necropsy. K. Motzfeldt.
91 Roentgenoscopy of Bones and Joints as Aid in Orthopedic Surgery. G. F. Haenisch.
92 Psycho-Analysis. (Beitrag zur Freudschen Psychoanalyse.) P. Engelen.
93 The Alleged Ritual Murder at Kiev and the Medical Expert Testimony. E. Zienke.

84. **Rabies.**—Koch concludes his review of the fifteen years of work of the rabies department of the institute for infectious diseases at Berlin with the statement that possibly potassium iodid might be useful in prophylaxis and treatment of rabies, as it is in syphilis. He refers especially to the cases in which the virus has lurked silently in the body for weeks, months or years, and finally rouses to bring on the rabies in a pronounced form. Nothing is known that will neutralize the rabies virus, but he thinks that potassium iodid may influence the tissues of the central nervous system so that they will no longer have an affinity for the virus. This is the explanation, he is convinced, of the efficacy of potassium iodid in syphilis; it modifies the tissues that have become pathologic under the influence of the spirochetes and thus renders the medium unfavorable for their growth. Both theory and practice sustain the wisdom of giving potassium iodid in rabies, and he has been applying it in this way for nine months as adjuvant to the ordinary inoculation treatment of rabies. Every person taking the Pasteur treatment is given a tablespoonful or dessertspoonful of a 4 to 200 solution of potassium iodid, and thus takes three or four bottles during the course. Therapeutic experience with potassium iodid in actinomycosis, etc., justifies its use in this way. In three cases of abortive rabies all the symptoms rapidly subsided under it, contrary to what is usually observed in such cases. A course of potassium iodid after the Pasteur treatment and again during the year might also have a tranquillizing effect on persons who have been bitten by an animal. He warns in regard to the influence of a trauma, overfatigue, emotional stress or abuse of alcohol in rousing the slumbering virus to bring on the disease; it is now established beyond question that the virus can be present in the nerve tissue without causing any manifestations until something occurs to arouse it to malignant action.

85. **Serodiagnosis in Mental Disease.**—Bundschuh and Roemer applied Abderhalden's technic to nine healthy persons, to nine with manic-depressive insanity, forty-one with dementia praecox, thirteen with progressive paralysis. Their serum was tested for digestion of brain cortex tissue, thyroid, kidney and ovary or testicle tissue. The results confirmed the specific nature of the ferments elaborated in these various conditions; constantly negative in the controls, serum from the dementia cases digested cortex tissue in thirty-five, sexual glands in thirty-four, and thyroid in fourteen cases. The thirteen with progressive paralysis all gave a negative response to thyroid tissue and ten to testicle tissue, but the response was positive with cortex tissue in eleven, to testicle tissue in ten, to both in two, and to cortex tissue in two. His findings thus testify to the specific character of the defensive ferments elaborated in these forms of mental disease.

87. **Tubercle Bacilli in Lupus Lesions.**—Stern states that he found tubercle bacilli virulent for animals in the discharge from ulcerating lupus on the face in eleven of sixteen patients examined, namely, in 68 per cent. He suggests the danger of contagion of others from such persons and the necessity for prophylactic measures.

88. **Zone of Degeneration of the Liver in Pregnancy.**—Heinrichsdorff found necrosis in the center and in the middle zone of the liver in a woman who died the third day after induction of premature delivery on account of contracted pelvis. The aspect of the liver seemed normal; only when the liver was opened was the zone of necrosis discovered. The pregnancy had been apparently normal.

89. **Latent Erysipelas.**—Berger's patient suddenly developed intensely itching follicular eczema over the scalp, face, chest, neck and forearms; it spread the next day but then became stationary. The fifth day the picture changed to that of unmistakable erysipelas which ran the usual course and the eczema subsided with it. He declares that the eczema was secondary to the primary erysipelas which had developed in the depths but did not come to the surface until the fifth day. In a second case the eczema developed in the same abrupt manner, but the third day jaundice and other signs of catarrhal icterus developed. In this case the eczema was likewise of toxic origin, the first manifestation of the biliary affection, and it kept up until conditions righted themselves in the bile apparatus (nine days).

Deutsche Zeitschrift für Chirurgie, Leipsic

September, CXXIV, Nos. 5-6, pp. 431-628

94 *Tuberculous Foci in Long Bones. (Die herdförmige Tuberkulose der grossen Extremitätenknochen mit bes. Berücksichtigung der metaphysären Lokalisation.) A. Oberst.
95 Etiology and Histogenesis of Primary Cancer of the Appendix. (Wurmfortsatzkrebs.) E. Schwarz (New York).
96 *Empyema with Operation; 118 Cases. T. Hirano.
97 Foreign-Body Tuberculous Peritonitis. (Zur Kenntnis der Fremdkörpertuberkulose des Bauchfells.) F. Kaspar.
98 *Horse Serum in Prophylaxis of Peritonitis. (Praktische Erfahrungen von Anwendung des Pferdeserums zur Resistenzvermehrung des Peritoneums gegen Infektion.) T. Hirano.
99 *Surgical Treatment of Ascites. E. Schwarzmann.
100 Surgery of the Esophagus. K. Omi and Z. Karasawa.
101 Cancer of Frontal Sinus. (Carzinom der Stirnhöhle.) K. Wisotzko.
102 Simple Practical Means for Artificial Respiration to Prevent Danger of Open Pneumothorax. Gelinsky.

94. **Circumscribed Tuberculous Lesions in Long Bones.**—Sixty illustrations accompany the text of Oberst's article which gives a general review of the subject, besides presenting his own experience. Each location is described on the basis of a few typical cases, with the clinical picture presented. In the great majority of cases the process starts in the metaphysis, only in the rarest instances in the shaft proper.

96. **Empyema.**—Hirano states that of the 118 patients with empyema given operative treatment at Ise, Japan, since 1900, ninety-three were children. Healing was not complete in adults under six months but the children healed up much faster. Twelve adults died and only eight were permanently cured, but 72 per cent. of the children were cured; 14 per cent. died. The outcome is not known in five other adults and in twelve of the children.

98. **Horse Serum to Enhance Resisting Power of Peritoneum.**—Hirano thinks that injection of horse serum may prove a valuable adjuvant in warding off or curing postoperative peritonitis and in peritonitis from any cause. He applied it in thirty-four cases and was amazed at the rapidity with which already installed peritonitis subsided after intramuscular injection of adults with 40 c.c. sterile horse-serum, children 20 c.c. No effect was apparent in a few cases.

99. **Operative Treatment of Ascites.**—Schwarzmann reports the outcome in fourteen cases of ascites in which operative treatment has been applied since 1906. The data presented emphasize the importance of excluding tuberculous peritonitis and cancer before doing any operation for ascites. Otherwise serious complications may follow. Incipient cirrhosis of the liver is the most promising field for operative treatment. For differential diagnosis the most important elements of the clinical picture are the preascites edema, frequent finding of blood in the stools, initial hematemesis, enlargement of the spleen and general symptoms. By heeding the above symptoms it may be possible to diagnose cirrhosis of the liver in an early phase so that prompt operative treatment may put an end permanently to the tendency to ascites.

Medizinische Klinik, Berlin

October 12, IX, No. 41, pp. 1663-1708

103 *Diet for Forced Feeding and in Treatment of Obesity. (Ueber Mast- und Entfettungskuren.) K. Glaessner.
104 *Reinfection with Diphtheria. F. Reiche.
105 Course of Acromegaly. G. Hillel.
106 Intra-Abdominal Purpura in the Adult. G. Rosenow.
107 Seaside Sanatoriums. (Klimatophysiologische Beobachtungen an der Nordsee.) K. Häberlin.
108 *Mental Factor in Heart Murmurs. (Ueber psychische Herzgeräusche.) H. Bensch.
109 Relations between Diabetic Coma and Infectious Diseases. J. H. Siebelt.
110 *Contagiousness of Infectious Diseases. F. v. Szontagh. Commenced in No. 40.
111 Study of Influence of Carbonated Baths on the Circulation. Wybauw.

103. **Forced Feeding and Diet in Treatment of Obesity.**—Glaessner emphasies that when there is undernourishment the glycogen disappears first from the liver, muscles and organ cells, then the fat disappears from the cells, mostly from the subcutaneous tissue, muscles and glands. The proportion of loss is for fat, about 95 per cent.; muscles, lymph-nodes and blood, 40 or 50 per cent.; bone, 10 or 15 per cent. The lost albumin cannot be replaced by merely feeding albumin. The patient must have an appetite for his food and consequently change of air and scene, exercise in a pleasurable form, sports, and the preparation and seasoning of the food in an appetizing way are extremely important factors in forced feeding. Sometimes a complete change of diet, as change to an Italian menu, for example, or to sea foods, will answer the purpose. He does not approve of drugs, but advocates hydrochloric acid at need, "although not in the homeopathic doses generally employed." Condurango is also useful and arsenic, as the latter promotes metabolism of albumin.

Von Noorden estimates the normal weight by multiplying the height (in centimeters) by 480 gm. for the maximal and by 430 gm. for the minimal weight. Others estimate it by multiplying the height in centimeters above 100, by 1,000 gm. Oeder measures the distance between the top of the head and the symphysis, multiplies by 2, deducts 100, and multiplies the remainder by 1,000 gm. The undernourished should take about one-fifth more calories than the average for their weight. As a rule it may be said that the diet should include equal proportions of fat and protein with twice this proportion in carbohydrates. Glaessner says of the artificial foods on the market that there is nothing in the world so worthless that it may not be praised to the skies some day as an artificial food, adding that all the albumin-casein-lecithin preparations on the market can be tranquilly dispensed with in feeding the undernourished. He adds that it is disheartening to witness how medical men are willing to promote this advertising of artificial foods by throwing the mantle of science over them. These artificial foods are absolutely unfitted to take the place of foodstuffs; they are not only defectively utilized and merely load down the intestinal tract, but they lack that prime essential in diet, an appeal to the appetite. We can never emphasize strongly enough, he reiterates, the importance of comfort at meals and of appetizing preparation of the food.

In treatment of obesity, extremes should be avoided. Moderate amounts of albumin, carbohydrates of vegetable origin not readily digested, and small amounts of fat should be the basis for the diet, with saccharin instead of sugar. The water-supply need not be reduced. A tablespoonful of oil before meals aids in reducing gastro-intestinal secretion and thus retards digestion while it dulls the appetite. He advocates an occasional day of actual fasting. Physical exercise for the obese is far subordinate in importance to dieting. The restrictions in diet must generally be kept up throughout life. A course of strict dieting to reduce rapidly the obesity is by no means an indifferent matter; it makes great demands on the body as a whole and it is infinitely safer to regulate the habits so as to ward off the return of the obesity.

104. **Reinfection with Diphtheria.**—Reiche states that the records of the Hamburg hospital show 394 cases of diphtheria in the last seven years, in which there had been a preceding attack of the same disease in previous years. In the last two years, of the 4,761 diphtheria patients, 5.8 per cent. were known to have had a previous attack; the largest proportion, 10.9 and 15.8 per cent., were in young adults up to 25, and in adults between 25 and 50. In an additional 1.6 per cent., the second attack of diphtheria was evidently merely a relapse. The data presented confirm the absence of any immunization by a single attack of diphtheria. There were more cases of diphtheria at Hamburg in 1911 than at any time since 1895; 573 of the 4,761 cases in the last two years terminated fatally.

108. **Psychic Heart Murmurs.**—Bensch is convinced that heart murmurs are sometimes the effect exclusively of emotional or psychic influences. He reports twenty-four cases of the kind observed during a recent three months; the murmurs varied from time to time, alternating with normal findings. Vaquez calls them "office-examination murmurs," *souffles de consultation*. Bensch emphasizes as the special features of this group of murmurs their frequency; the exclusive location of the maximal sound in the second left interspace, close to the sternum, and only during systole—he never encountered them at any other point or during diastole; the changeability of the character of the murmur, the varying intensity of the murmur during the examination, during change of position or exercise, increasing in some and declining in others; loudest during deep breathing, and encountered in the delicate and pale and also in robust individuals. These murmurs in certain cases have led to far-reaching mistakes in diagnosis and in the making out of medical certificates, and he warns all to be on their guard with such phenomena in the left interspace. He reviews in conclusion the literature on the subject, although his latest citation from American sources dates from 1889.

110. **Contagiousness of Infectious Diseases.**—Szontagh relates that a child was visiting in a family where measles broke out a few days after her return home. He asked the child's mother to take her temperature systematically as there was every reason to suppose that she had been infected. This was done regularly and the eleventh day the temperature was found slightly above normal, although the child felt perfectly well and had not a trace of nose or throat trouble. The child was at once completely isolated and the measles ran its usual course. Eleven days later the child's four brothers all developed measles. Szontagh says that the child could have

infected her brothers only at the moment when the disease began, that is, when the temperature began to go up. The facts in this and similar cases indicate, he thinks, that the contagion must be air-borne and that it must emanate spontaneously from the infected child, which can occur only in the respired air. It leaves the mucous membrane of the air-passages before it shows signs of disease, and penetrates through the sound mucosa of the predisposed receiver. He argues to prove that the organism must be previously sensitized in some way or the virus will not cause the disease. The fact that the period of incubation is about the same for all the eruptive diseases suggests some close connection between them, as also the fact that the causal agent for none of them has yet been discovered. Measles is spread by school infection, while his experience has been that this is not the case with scarlet fever; the incidence of the latter is greatest in August and regularly declines after October. The solution of the problem of the acute infectious diseases lies, he is convinced, in the study of anaphylaxis. Why does a tonsillitis in one individual assume the form of scarlet fever and in another not? It is a well-known fact that an operation, a severe burn, trauma, overexertion or chilling may bring on an attack of scarlet fever. When sore throats are common, scarlet fever occurs more frequently. Another argument in favor of anaphylaxis as a determining factor is the occasional development of measles, for instance, in children apparently absolutely shut off from any source of contagion; he relates a number of instances of this.

Münchener medizinische Wochenschrift

October 14, LX, No. 41, pp. 2265-2320

112 *Regeneration of Axis-Cylinders in Vitro. R. Ingebrigtsen (New York).
113 Improved Technic for Roentgenotherapy. (Neue Wege zur Steigerung der zerstörenden Wirkung der Röntgenstrahlen auf tiefliegende Geschwülste.) H. Sellheim. (Fortschritte in der Erzeugung harter Röntgenstrahlen.) F. Dessauer.
114 *Tonsillectomy in Children. B. Riedel.
115 *Estimation of Functional Capacity of the Liver. H. Hohlweg.
116 *The Sugar in the Blood with Chronic Nephritis. L. Borchardt and W. Bennigson.
117 *Estimation of Sugar Content of Blood. (Ueber den klinischen Nachweis von Hyperglykämie.) I. Bang.
118 The Petrolatum in Beck's Bismuth Paste Alone Responsible for the Good Effect. (Welches ist der wirksame Bestandteil der Beckschen Wismutpaste?) F. Rost.
119 Serodiagnosis by Abderhalden's Methods in Pregnancy and Gynecologic Disease. Tschudnowsky.
120 Electric Influencing of Abnormal Leukocyte Count. O. Veraguth and R. Seyderhelm. Commenced in No. 40. See abstract 83, p. 1853.
121 Legal Aspects of Medical Practice. (Der Arzt in der Rechtsprechung.) P. Kaestner.
122 Pathology of the Omentum. W. Gundermann.

112. **Regeneration of Axis Cylinders in Vitro.**—A summary of Ingebrigtsen's work in this line was given in THE JOURNAL, Feb. 22, 1913, p. 627.

114. **Tonsillectomy in Children.**—Riedel remarks that he had rather remove the gall-bladder, the appendix or an ovarian tumor, than operate on a small, firmly embedded and friable tonsil. Tonsillectomy under such circumstances is a serious operation and requires general anesthesia. With ordinary, enlarged tonsils local anesthesia may suffice even for children, but he has never attempted it as he dreads the child's crying. The general anesthesia has to be profound for a short interval which, of course, is not without its dangers. The blood swallowed during the operation may be vomited afterward and give cause for alarm, as it is supposed to be the dreaded "hemorrhage." He has known of the pillars being sutured together on this account when there was really no tendency to hemorrhage. He has attempted tonsillectomy a few times in acute tonsillitis but found the tonsils too soft and friable to be removed. He warns in conclusion that an imperfect operation is worse than none. A diseased tonsil must be removed *in toto*, down to a small bit of sound tissue which he always tries to save. He prefers a stout, unbendable, heavy and straight clamp, 22 cm. long and 5 and 13 mm. broad, with three teeth. This leaves his right hand free for the knife.

115. **Threshold Levulose Test of Functional Capacity of the Liver.**—Hohlweg expatiates on the instructive oversight of liver functioning afforded by the alimentary levulosuria induced by graded doses of levulose on an empty stomach, taken in 300 c.c. of milk. The urine is collected every two hours afterward for six hours. According as the case looks suspicious, he gives 50, 75 or 100 gm. of the levulose, increasing or lowering the amount by 25 gm., after a two or three-day interval until the limit of tolerance is reached. The tolerance for levulose is reduced proportional to the injury of the parenchyma of the liver. The "threshold" response is thus a reliable index of the present existence and severity of pathologic changes in the liver. He tested the urine for levulose by the Seliwanoff method, namely, the addition to the urine of equal parts of 25 per cent. hydrochloric acid and a few crystals of resorcin, first shaking up the urine with animal charcoal to decolor it. The test is regarded as giving positive findings when, on brief boiling, a bright red precipitate is thrown down which dissolves in alcohol, giving it a dark red tint. The findings in about 105 cases of various liver affections show that the tolerance is materially reduced when the common bile duct is obstructed with a gall-stone and in cases of catarrhal jaundice; alimentary levulose follows ingestion of even 50 gm. levulose. With neoplasms, enough functionally capable cells are generally left somewhere in the liver so that the tolerance for levulose is not materially reduced. The findings often throw light on the diagnosis and prognosis, and the simplicity and ease of the test and the fact that it may reveal pathologic conditions in the liver long after the morbid cause has been apparently eliminated, render the method very valuable. In one of the cases cited to illustrate the workings of the test, a man of 61 had been having symptoms for three months suggesting gastric cancer, and he had lost over 33 pounds in weight in six months. No blood could be found in the stools but urobilin was constant in the urine. There was some levulosuria after ingestion of 100 gm. fasting, and this was accepted as evidence that the trouble was cholelithiasis. Complete recovery followed and there has been no further disturbance during the six years since. The retrospective diagnosis was acute disturbance in the liver following temporary obstruction of the common bile duct. In another case a woman of 41 had signs of such obstruction but there was no severe pain at any time, while the woman had grown very emaciated during the last few months. All this suggested compression of the bile duct by a cancer, but intense levulosuria followed ingestion of 75 gm. and later of 50 gm. of levulose. On the basis of this finding, cancer was excluded and the operation disclosed a small gall-stone lodged in the common bile duct and no trace of a neoplasm.

116. **Sugar in the Blood in Chronic Nephritis.**—Investigation of eight patients with nephritis indicated that the sugar content of the blood is abnormally high in nephritis only when there is retention of sodium chlorid or nitrogen or both. The same causes which induce reabsorption of the sodium chlorid, cause reabsorption of the sugar normally eliminated in the urine.

117. **Technic for Determination of Sugar Content of Blood.**—Bang's method requires only two or three drops of blood. They are taken directly from the lobe of the ear on a piece of good blotting paper 16 by 28 mm. The scrap of paper is held with forceps, and it is not allowed to soak up too much blood. It is then placed in a test-tube. A second test-tube holding 5 c.c. of a mixture of 136 c.c. of saturated solution of potassium chlorid, 64 c.c. water, and 0.15 c.c. of a 25 per cent. solution of hydrochloric acid, is heated and when it boils it is poured carefully over the blood-paper. In order to have the fluid come in contact with all the blood he holds the tube slanting. When entirely cool, not until after half an hour, the fluid is then poured into a third test-tube, and to it are added 5 drops of the Fehling II reagent and 2 drops of Fehling I. It is then boiled for half a minute and watched for two minutes. If no oxydul precipitates out in two minutes, the proportion of sugar in the blood is below 0.15, that is, it is within practically normal range. The amount of oxydul thrown down is an index of the percentage of sugar in the blood.

Wiener klinische Wochenschrift, Vienna

October 16, XXVI, No. 42, pp. 1689-1736

123 *Biologic Test Shows Absorption of Sperma in Female Organism. E. Waldstein and R. Ekler.
124 *Blood-Pressure and Cholesterin Content. (Hypertension und Cholesterinämie.) C. Cantieri.
125 Vaccine Therapy of Ozena. (Coccobacillus foetidus ozaena Perez.) G. Hofer and K. Kofler.
126 Iodized Oil as Reagent in Serodiagnosis of Syphilis. (Reaktion luetischer Sera mit einem Jodöl-Reagens.) W. Landau.
127 *Aid in Prognosis in Pulmonary Tuberculosis. M. Weiss.
128 Means to Control Spread of Tuberculosis. (Zur Tuberkulosebekämpfung.) A. K. v. Aichbergen.
129 The Blood of Syphilitics Alleged to be Highly Infectious. R. Frühwald.
130 Modern Pathologic Anatomy in the Medical Course. H. Albrecht.

123. **Biologic Test for Absorbed Sperma in Female Serum.**—The research reported was done on rabbits. It demonstrated the presence in the serum of the female after cohabitation of a ferment that digested testicle tissue; beforehand the test had constantly elicited a negative response. The ferment reaction persisted positive in the gravid animals up to sixteen days after littering. Waldstein and Ekler say that these findings indicate that the female organism is materially influenced by substances absorbed from the sperma, causing the production of a ferment hitherto strange to the organism. If these findings apply also to human beings, they would explain certain phenomena in the life of a woman which have hitherto been credited only to psychic processes. Possibly the ninhydrin test for the sperma reaction might prove instructive in certain medicolegal circumstances.

124. **The Blood-Pressure and the Cholesterin Content.**—Cantieri's comprehensive research failed to show any direct connection between an abnormally high blood-pressure and the cholesterin content of the blood. With nephritis there is generally an excess of cholesterin in the blood, even in cases with normal or subnormal blood-pressure.

127. **Prognosis in Pulmonary Tuberculosis.**—Weiss remarks that the outcome in tuberculosis depends more on the reaction of the organism to the infection than on the infecting agent, and consequently our efforts to foresee the outcome must be based on what we can learn of these reactions. In the early stages, the production of lymphocytes in the blood runs parallel to the energy of the defense set up against the invading germs. Forms of tuberculosis with slight tendency to lymphocytosis afford the least favorable prognosis. Tuberculous processes in the lungs make exceptional demands on the lymphocytes, as each tubercle becomes enclosed within a wall of lymphatic cells. Lymphocytes are thus withdrawn from the blood-stream to such an extent that the proportion in the blood may drop to 5 per cent.—a bad sign. Diseases which make special demands on the lymphocytes, such as measles in a child and typhoid in an adult, deprive the organism of the protecting lymphocytes and thus open the portals to tuberculosis, or throw down the barriers around a hitherto latent focus. It is possible that the change to negative of the skin tuberculin reaction in measles and in advanced stages of tuberculosis, is due to the special using up of the lymphocytes in these conditions.

Another sign that the defensive powers of the organism are being overwhelmed is the appearance of urochromogen in the urine. This shows that specific toxic substances are being absorbed, and hence it is a bad sign. The test for urochromogen is extremely simple and reliable. Fresh limpid urine is diluted three times in a test-tube with ordinary water, and then half is poured into another tube and 3 drops are added to it of a 1 per thousand solution of potassium permanganate. In the presence of urochromogen, the fluid turns a canary yellow. The appearance of urochromogen in the urine is a sign that a local circumscribed tuberculous process has changed its character and become general, gravely menacing the organism. The urochromogen disappears from the urine when the organism gets the upper hand again; as long as it is found in the urine the prognosis is unfavorable, and it is the graver, the longer the urochromogen reaction has existed. Comparison of the urochromogen reaction and the skin tuberculin test in eighty-four cases showed concordance in sixty-six. In the eighteen cases in which the findings conflicted, the urochromogen proved the better prophet in all but four cases. Phagocytosis in the sputum is of little moment for the prognosis, according to his experience, and he says the same of Much's granula.

Zentralblatt für Chirurgie, Leipsic

October 18, XL, No. 42, pp. 1625-1656

131 *Symmetrical Gangrene of the Feet Among the Soldiers in the Balkan War. (Cholera- und Typhusgangrän.) A. Welcker. (Eigentümliche Fussgangränen aus dem Balkankriege.) L. Dreyer.
132 *Technic for Orchidopexy. A. Schäfer.

131. **Gangrene of the Feet Among the Soldiers in the Balkan War.**—Two articles were recently published in this *Zentralblatt* and one was summarized in THE JOURNAL, May 24, p. 1675, describing gangrene of the feet among men in the Turkish army. Conditions were similar to those after freezing of the feet, but the weather had not been cold enough to freeze. The cases were reported as "frost-bite without frost weather." Welcker takes exception to this explanation, believing that the gangrene was due to other causes. He encountered 115 cases of it among the men in the Bulgarian army during the same period, and in every instance the men had had one or two weeks before a typical attack of cholera or of dysentery or diarrhea. In forty-five other cases the gangrene developed in men who had or had just recovered from typhoid. After the spread of cholera had been arrested, no further cases of gangrene developed except among those with typhoid. At a later period he encountered hundreds of cases of actual freezing of the feet, and conditions in these cases differed materially from the gangrene following acute intestinal disease. Welcker cites some authorities who mention gangrene as a complication of cholera. In his cases the gangrene was generally symmetrical and the exposure and cold undoubtedly contributed to its development. In the second Balkan campaign the cholera occurred during the summer and no cases of gangrene came to his knowledge. Dreyer ascribes the gangrene among the Turkish soldiers to their way of dressing the feet, which impedes the circulation.

132. **Orchidopexy.**—To prevent retraction and pain—which compelled a second operation in a recent case—Schäfer passes a stout silk thread through the lower pole of the testicle and fastens it to the inside of the opposite thigh at such a distance below that it pulls on the spermatic cord and thus stretches it. The testicle when it is drawn down is forced through a slit in the septum so that it lies with the normal testicle and the septum is sutured behind it. In case both testicles have to be brought down, they are crossed over into opposite sides of the scrotum and the silk threads fastening them to the thighs below are also crossed.

Zentralblatt für Gynäkologie, Leipsic

October 18, XXXVII, No. 42, pp. 1549-1580

133 *Bleeding in the Ovary in Cases of Uterine Myoma. (Uterusmyom und Ovarialblutungen.) K. H. Oehman.
134 * Roentgen Rays Break up Adhesions in Pelvis. (Lösung parametrischer Verwachsungen durch Röntgenstrahlen.) M. Fraenkel.

133. **Bleeding in the Ovaries with Uterine Myomas.**—Oehman has discovered evidences of ovarian hemorrhage in nine cases of uterine myomas. No traces of inflammation were found in the ovaries or tubes in any instance nor signs of vascular anomalies. Ferguson reported last year a case of serious hemorrhage from the ovary after supravaginal amputation for a large myoma; the woman recovered after removal of the ovary, the seat of the hemorrhage. It issued from a ruptured corpus luteum. The ovaries should be inspected with special care in all operations for uterine growths.

134. **Roentgen Rays Break up Adhesions in the Pelvis.**—Fraenkel has been impressed with the way in which parametritic adhesions binding down the uterus were found loosened up on reexamination of patients a few months after a course of Roentgen-ray exposures for some gynecologic affection. These adhesions holding the uterus in backward displacement are often the source of great discomfort or pain, and this action of the Roentgen rays on them is a welcome addition to our armamentarium. He found it marked in 75 per cent. of

the patients he has been able to reexamine recently out of his total 500 gynecologic patients given Roentgen-ray exposures. A second operation became necessary for appendicitis on a patient operated a year before for tuberculous peritonitis at which time numerous adhesions were found, too extensive to be all broken up, and no attempt was made to do this. A large abscess in the pelvis later was treated by roentgenotherapy. At the operation on the appendix no trace could be found of the old adhesions; they had all been absorbed. This also occurred in a second case of tuberculous peritonitis. The action on the adhesions was most evident in a case of ovarian cyst. As the anesthesia was not borne well, the operation was interrupted after the cyst had been evacuated. Some smaller cysts followed causing severe disturbances as they pulled on the bladder, etc. Under roentgenotherapy the discomfort and disturbances all ceased, although the cysts had not been reduced in size; evidently the adhesions had been broken up and absorbed leaving the cysts free and movable, and they ceased to be disturbing. A number of similar experiences are cited, including three cases of pleuritic adhesions and two with relics of pneumonia demonstrating the efficacy of the Roentgen rays in promoting the absorption of adhesions. Fraenkel has found no reference in the literature to this property of these rays except Schulz' mention of their efficacy in treatment of cicatricial keloid.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 12, XXXIV, No. 122, pp. 1271-1286

135 *Treatment of Exophthalmic Goiter with Serum of Thyroidectomized Animals and Carbonated Salt Baths. P. Stein.

October 14, No. 123, pp. 1287-1294

136 Advantages of Instrumental Dilatation of the Os Uteri in a Case of Eclampsia. R. Giunta.

October 16, No. 124, pp. 1295-1302

137 Epinephrin the Best Means at our Command for Treatment of Whooping-Cough; Fifteen Cases. (L'adrenalina nella terapia della pertosse.) L. C. Mulas.

October 19, No. 125, pp. 1303-1318

138 *Otitis Media in Infants. F. Strina.

135. **Exophthalmic Goiter.**—Stern gives an interesting review of the experiences to date with the serum of thyroidectomized animals in exophthalmic goiter and relates its successful application, supplemented by a Nauheim course of carbonated baths, in three cases, two very severe. The patients were women of 29 and 51, and the exophthalmic goiter had resisted all other treatment. In the oldest patient a course of baths the year before had been ineffectual, but this year, supplemented by the serotherapy, remarkable improvement was realized. The much dilated left ventricle subsided to normal size in all the cases. The circumference of the neck grew smaller by 1.5, 2 and 2.5 cm. By commencing with small doses it is possible to improve without by-effects.

138. **Otitis Media in Infants.**—Strina states that he found evidences of otitis media in 70.9 per cent. of the infant cadavers at the Venice foundlings' home. In the last ten years the mortality was 15 per cent., and in 152 of the 346 necropsies there was otitis media on one or both sides, the frequency thus being 44.70 per cent. Of this number about 78 per cent. of the infants were less than six months old. He calls attention to the anatomic conditions which permit infection of the ear from the mouth during delivery or later; the eustachian tube is broader, shorter and more horizontal than later in life, and it can readily become infected from matter forced into it in coughing, vomiting, etc. On account of this broad opening the ear trouble drains readily so that the membrane does not perforate as a rule; perforation was found in only four cases. In a few instances the infection was most probably of blood-borne origin. The otitis media was generally the work of ordinary germs, and the children thus affected were usually in poor physical condition. The otitis media was less frequent the older the infants, showing either that the ear trouble had healed or that the parts had become more resistant. The otitis evidently was primary in some cases and swallowed pus from it entailed gastro-intestinal disturbances. In other cases the primary lesion was in the intestines and the vomit containing infectious material led to involvement of the ear, either directly or by way of the blood. This was probably the mechanism likewise with primary lesions in the lungs. A remarkable feature of otitis media in infants, according to his experience, is the absence of involvement of the mastoid and intracranial region. He suggests in conclusion that deafness and deafmutism may be traced in some cases to unsuspected disease of the middle ear soon after birth.

Policlinico, Rome

October 12, XX, No. 41, pp. 1469-1508

139 Application of 5 per cent. Aqueous Solution of Stovain Cures Ejaculatio Praecox; One Case. S. Baglioni and G. Amantea.

October 19, No. 42, pp. 1509-1544

140 *Means to Secure Continence after Operation for Rectal Cancer. G. Zironi.

141 Pancreatitis from Mumps; Three Cases. (Pancreatite da orecchioni.) A. Allegri.

October, Medical Section No. 10, pp. 433-480

142 Drum-Stick Fingers and Toes in Young Man with Tuberculous Process in Lung. (Sulla osteo-artropatia ipertrofica pneumonica.) R. Massilongo and U. Gasperini.

143 Therapeutic Pneumothorax Cures Abscess in Lung; Two Cases. G. Izar.

144 Heart-Block; Two Cases. (Dissociazione atrio-ventricolare completa.) C. Pezzi.

145 Relations between Serum Sickness and Anaphylaxis. (Rapporti tra malattie da siero e fenomeni anafilattici.) T. Pontano. Commenced in No. 9.

140. **Means to Prevent Incontinence After Operation for Rectal Cancer.**—Zironi reports a case in which he succeeded in retaining the anus intact and without contamination while the rectum was amputated above. The results were excellent, the patient having complete control over the anus without the least tendency to incontinence during the seven months to date. The special field for the technic is in women, but the principle can also be applied to men. He made an incision encircling the anus, cutting down to the cellular tissue, and then ran a stout silk thread around in a purse-string suture and drew it up tight, thus completely closing the anus. The external sphincter muscle was then divided, cutting down to the intestine along the anovulvar rhaphe and into the vagina. The halves of the external sphincter were then drawn aside and the rectum was prepared for the amputation, suturing the intestine above the cancer to the levator ani on each side to prevent undue traction later. The two halves of the external sphincter were then replaced and sutured together and the vagina restored—all of which was done before the rectum was opened. The wound healed in eight days in his case, permitting administration of castor-oil.

Riforma Medica, Naples

October 11, XXIX, No. 41, pp. 1121-1148

146 Unfavorable Experiences with Double Potassium Cyanid and Gold in Syphilis and Various Skin Diseases. G. Burzi.

147 Addison's Disease with Apparently Normal Adrenals and Hypertrophy of Accessory Adrenal Glands. N. Pende and G. B. Varvaro. Commenced in No. 40.

148 Association of Acromegaly and Myxedema. L. Millioni. Commenced in No. 39.

October 18, No. 42, pp. 1149-1176

149 Unreliability for Diagnosis of Cancer of the Neutral Sulphur in the Urine. (La nuova reazione di Salomon-Saxl sullo zolfo neutro orinario.) L. Marenduzzo.

150 Diagnostic Importance of Rate of Elimination of Oxyproteinic Acid in Various Diseases. V. Faggella.

151 The Leukocytes and the Gas in the Blood in Carbon Monoxid Poisoning, and during Fasting, Etc. M. Ciovini. Commenced in No. 41.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 13, II, No. 11, pp. 817-900

152 *Mistakes in Diagnosis with Deformity of Trunk. (Geneeskundige dwalingen bij vergroeiingen van den romp.) J. A. Korteweg.

153 Clinical-Chemical Diagnosis in Stomach Diseases. F. A. Steensma.

154 Echinococcus Disease of Lung; Recovery after Operation. C. Bles.

September 20, No. 12, pp. 901-984

155 Malignant Growth Cured by Wound-Infection. (Een kwaadaardig gezwel genezen door wond-infectie.) J. Rotgans.

156 Case of Neurofibromatosis. (Een geval van de ziekte van von Recklinghausen.) P. H. van Roojen.

152. **Mistakes in Diagnosis of Skeletal Deformities.**—Korteweg expatiates on the erroneous interpretation of certain findings suggesting deformity of the trunk, and cites several

cases to show how difficult it is to avoid mistakes in diagnosis under certain conditions. Among them is the case of a girl with merely a lumbar protrusion of the spine, but as she happened to have backache, spondylitis was assumed and she was kept long in bed and treated on this erroneous assumption. Korteweg has been studying lumbar kyphosis with special care and has reached the conclusion that in many of these cases the curvature is physiologic. When a young girl, for instance, with a very flexible spine is examined sitting up in bed and stooping forward, we receive an impression very different from that of a body lying on a flat surface. Examining in these conditions we may find a regular kyphotic curvature or lumbar lordosis; lordosis may be complicated with kyphotic protrusion of the middle lumbar spinous process. While an ordinary kyphotic curvature does not suggest spondylitic kyphosis, a limited lumbar kyphosis in the middle of a slight lordosis makes the diagnosis more difficult. If the patient happens to complain of backache, the examining physician is liable to be misled to assume an inflammatory origin for the curvature. If patients are examined standing, these mistakes are less likely to occur.

Another class of cases liable to prove misleading are those in which the chest wall bulges along one side of the sternum. If the patient happens to complain of a pain in the region, an abscess or osteosarcoma is at once suspected, when in reality the bulging is merely the protrusion of the sharp angle of the first and second costal cartilages; the angle becomes less pronounced lower down. If there were in fact a sarcoma at this point, the adjoining ribs would be displaced or the sternum would bulge. A retrosternal abscess or growth would not produce such a sharp point.

The clavicles may be asymmetrical, especially at the junction with the sternum, and the chest is not evenly rounded, while slight traces of scoliosis are evident. With this form of scoliosis there is more than ordinary torsion of the vertebrae. Another class of cases liable to be misinterpreted are those in which the region over the spinous processes of the lumbar vertebrae protrudes. This is the result of scoliosis with considerable torsion of the vertebrae. The bulging of the lumbar muscles during examination may simulate fluctuation. The asymmetry from old scoliosis with its many deformities is sometimes ascribed to intercurrent trauma, and made the basis for claims for damages.

Pediatria, St. Petersburg

IV, No. 5, pp. 337-416

157 Lime Salts in the Blood of Children. (Soderjhania izvesti v krovi u dietei po metodu Wright'.) M. M. Katzenelenbogen.

No. 6, pp. 417-499

158 Morbidity of Schoolchildren in Moscow. D. E. Goroschoff.
159 *Intrapleural Injection of Epinephrin in Treatment of Pleurisy with Effusion. E. S. Volkova.
160 Case of Muscular Atrophy; Aran-Duchenne Type. P. I. Fedoroff.
161 *Mild Chronic Nephritis in Children; Two Cases. (Paedonephritis levis Heubner'a.) I. V. Stavsky.
162 Infant Welfare Work. L. O. Michnik.
163 *Treatment of Diphtheric Stenosis of the Larynx. N. I. Uspensky. Commenced in No. 41.
164 Hemorrhage from the Uterus in New Born Infants. V. P. Joukovsky. See Abstract 125, page 1855.

159. **Intrapleural Injection of Epinephrin in Treatment of Pleurisy with Effusion.**—Volkova used epinephrin, 1 to 1,000, in six cases of different forms of pleurisy with effusion. No other remedies were given. The doses varied from 1½ divisions of a common 1 gm. hypodermic syringe to 3, and in the last case (a 4-year-old boy) even 5 divisions. The pulse-rate climbed from 98 to 120, or from 120 to 140, but toward evening of the same day the pulse became the same as before the injection. The amount of urine increased. The number of injections varied from one to six and they were given every second or fifth day. The age was from 2 years and 4 months to 10 years. Five patients recovered almost completely and in a short time, in eight or thirty days; only in two cases were any by-effects from the epinephrin noted, in the form of very transient glycosuria. As children bear the treatment well, Volkova strongly recommends it to the attention of pediatrists.

161. **Mild Chronic Nephritis in Children.**—Stavsky reports two cases of Heubner's paedonephritis levis which, as is well known, does not show grave symptoms. Frequently the nephritis is not even suspected, being merely accidentally discovered. In some cases it manifests itself only as anemia, and the children are treated for this alone. If the urine is examined it is found to contain small amounts of albumin (1:1,000 or 1:2,000), some hyaline and granular casts, leukocytes and erythrocytes. The characteristic feature of this form of nephritis is that the albuminuria is constant, being found in both the day and night urine, but the condition of the patients remains stationary. The children are on an average about 6 years old and have passed through scarlet fever at some time. In Stavsky's cases the condition of both patients has remained stationary during the year or more since, and no treatment or lack of treatment has modified conditions in the least. He recommends in such cases not to keep the patient too long in bed, but to allow him to be up and about and lead the usual life except refraining from food that is liable to irritate the kidneys.

The practical importance of discovering the mild chronic nephritis is that it will warn against measures for the anemia, etc., which might injure the diseased kidneys still more. Stavsky even insists that the urine should be examined for albumin before starting a course of arsenic for anemia in a child, the discovery of albuminuria warning against arsenical medication. He suggests that this mild chronic nephritis is probably more frequent than supposed to date; it escapes detection unless the urine happens to be analyzed for any cause. The parents can be reassured that the nephritis although it may drag along for years, yet persists constantly mild according to the clinical experiences on record to date. (Stavsky's article and the preceding literature on the subject form the basis of an article in the *Semaine Médicale*, October 15.)

163. **Diphtheric Stenosis of the Larynx.**—Uspensky reviews 2,760 cases of laryngeal stenosis from diphtheria; intubation or tracheotomy was indicated in 1,436 cases. Diphtheria bacilli were found in 77.6 per cent., and in sixty-eight cases the diagnosis was confirmed by necropsy, while in 135 cases the membrane was expectorated, so that in 84.9 per cent. the diagnosis was confirmed. Of the total patients, 559 or 38.92 per cent. died, while tracheotomy gave a higher mortality. He does not advise too early intubation as in half of his cases the patients got along without it. The mortality rate in an epidemic does not depend on the time of treatment, but rather on the age—the older the children, the less the mortality. It was highest in infants less than a year old. In such young infants intubation is to be preferred; it gave 37.4 per cent. recovery, while only 4.2 per cent. recovered after tracheotomy. Repeated intubation was necessary in 40.8 per cent. during the first hour that followed the extubation; in 91.1 per cent., it was necessary during the first twenty-four hours. Each patient was intubated on an average, 1.96 times. The best time for removal of the tube is the end of the second and beginning of the third day. The intubation shortens the average duration of the disease; in 51.4 per cent., the course was less than two weeks. With primary tracheotomy it was more than three weeks in 61.1 per cent. When intubation for any reason cannot be done, tracheotomy is of great service; otherwise intubation should be preferred, even at the risk of causing a contact ulceration in the air passages. He never had gangrene develop in children above 2 or 3 years of age, and, in these there seemed to be no relation between the duration of the stay of the tube and the gangrene. The mortality of children with membranous croup depends on the involvement of the respiratory organs. Pneumonia developed after primary tracheotomy in 67 per cent.

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October 14, XXXVIII, No. 19, pp. 227-240

165 Classification of Cases of Kidney Disease. (Ueber sekundäre "genuine" und arteriosklerotische Schrumpfniere. A. Schabert.
166 Heliotherapy. (Ueber Sonnenbehandlung.) O. Moritz.

Semana Medica, Buenos Aires

September 11, XX, No. 37, pp. 573-632

167 Chondroma of the Foot with Myxolipomatous Degeneration. G. B. Arana.
168 *Benzol in Leukemia. V. Fossati.
169 The Therapeutic Limits of Heat and Cold in Hydrotherapy. G. B. Vinaj.

September 18, No. 38, pp. 633-696

170 *Extra-Uterine Pregnancy. (Embarazo ectopico.) F. Chiossone. Commenced in No. 37.
171 *Dermoid Cyst Interfering with Delivery. (Distocia por quiste ovarico dermoide previo.) J. Badia and others.
172 *Necessity for School Dental Clinics. J. B. Patrone.
173 *Serotherapy of Epilepsy. A. G. Gaspar.

168. **Benzol in Leukemia.**—Fossati's patient was a young woman with severe splenomedullary leukemia, not modified by roentgenotherapy. A fatal outcome seemed imminent when a course of benzol treatment was given and prompt improvement followed. The young woman was not able to bear the large doses of benzol that have been advocated, so the dosage was only from 20 to 60 drops in capsules, suspending the treatment for a day or so occasionally. The temperature returned to normal and by the end of two months the general condition was better than it had been since the first symptoms had been observed a year before. The blood-count at various dates is tabulated showing the increase in the reds and the drop in the whites from 360,000 to 56,000 in three months, the hemoglobin increasing from 35 to 50 per cent.

170. **Extra-Uterine Pregnancy.**—Chiossone reviews the experiences with extra-uterine pregnancy during 1912, in the women's departments of the ten hospitals of Buenos Aires. There were only four deaths among the 105 cases, and in the fatal cases the women were already infected or exsanguinated. He comments on the variability of the symptoms observed and urges that before any abdominal affection in a woman in the child-bearing age is diagnosed, it is necessary to exclude extra-uterine pregnancy. A doughy resistance in the pouch of Douglas is suggestive of a tubal pregnancy, but about the only positive sign of an extra-uterine pregnancy is the expulsion from the uterus of decidual membrane. An important element in differentiation is a history of some gynecologic affection; the ovum scarcely ever locates outside of the uterus unless there is a predisposition from preceding pathologic changes for the abnormal embedding. Increasing hemorrhage always demands an operation, but if the hemorrhage seems to have stopped he leaves the case to Nature, ready to interfere at need. He gives the details of ten cases; in one the woman passed through two extra-uterine pregnancies. In conclusion he warns that it may be necessary in some cases to be wary in stating the diagnosis of extra-uterine pregnancy, as social and legal questions may be involved. There is always the possibility that the accumulation of blood may come from an ovarian or other tumor in the absence of pregnancy.

171. **Dermoid Cyst Interfering with Delivery.**—In the case described the cyst was punctured and the contents withdrawn through a wide trocar after which the child was safely delivered. Three months later the cyst was removed by the vagina; it weighed then 100 gm. Analysis of the literature on the subject shows that removal by laparotomy of a cyst interfering with delivery has frequently entailed serious complications for mother or child or both, while vaginal removal is simple and harmless if preceded by puncture and evacuation of the contents of the cyst. This permits natural delivery and normal puerperium. The cases on record are summarized to show the advantages of this technic over the abdominal technic or colpotomy.

172. **Necessity for School Dental Clinics.**—Patrone's article was read at the recent international congress for school hygiene held in Buffalo. He reiterates anew the seriousness of dental caries for the development of the child, the importance of prophylaxis, and the necessity for those realizing this importance to organize, formulate and direct the propaganda for hygiene of the mouth and teeth among schoolchildren as a matter of vital importance for the public health.

173. **Serotherapy of Epilepsy.**—Gaspar gives no details but speaks in general terms of the conception of epilepsy as a toxemia, evidenced by the toxicity of the cerebrospinal fluid for animals, and by the efficacy of reinjection of the patient's own cerebrospinal fluid or fluid from other epileptics. The fluid is injected subcutaneously or into a muscle once a week, the amount not over 10 c.c. He queries whether the undeniable unmistakable improvement and even cures realized by this serotherapy can be explained by assuming the existence of antibodies in the fluid.

Hospitalstidende, Copenhagen

October 1, LVI, No. 40, pp. 1157-1196

174 Phlegmonous Disease of the Intestines. (Nogle Tilfælde af flegmonøs Tarmbetændelse.) H. Møller. Commenced in No. 39.

Ugeskrift for Laeger, Copenhagen

October 2, LXXV, No. 40, pp. 1627-1656

175 *The Sugar in the Blood. (Blodsukkerundersøgelser under normal og nogle patologiske Forhold.) I. Bing and B. Jakobsen.

176. **The Sugar in the Blood.**—Bing and Jakobsen report the results of estimation of the sugar content of the blood in sixteen normal persons, in thirteen with kidney disease, in seven with stomach or pancreas disease, in five with merely nervous disturbances, in seven with diabetes, and in six suspected of diabetes. The estimation was made by means of Bang's technic which they regard as an improved method for the purpose on account of its simplicity, rapidity and the fact that only a drop or two of blood is required for the test. (It is described in abstract 117 above.) The normal range was from 0.06 to 0.12 per cent., the average 0.1. The test was applied always at the same hour, 8 a. m. fasting. In a series of tests on a similar group of ten healthy persons given 100 gm. sugar in a cup of tea, the sugar content of the blood was found materially increased one hour afterward, but by the second hour the proportion had dropped back to the previous figure. This shows the importance of making the tests always under the same conditions and of being on the lookout for the briefly transient alimentary hyperglycemia. In two other cases, men of 55 and 60 had been taking very large amounts of sugar systematically on account of a chronic heart disease, hoping thus to improve the nourishment of the heart. Even with these doses of 250 gm. of sugar and above, the sugar content of the blood kept within normal range. In kidney disease the sugar content was a little above normal in a few of the thirteen patients tested, but it generally dropped to normal during the stay in the hospital and there was no abnormal alimentary hyperglycemia. The findings showed further that there is no constant relation between the sugar content and the blood-pressure; each may run an independent course. No excess of sugar in the blood was found in the cases of stomach or thyroid affections or neurasthenia, but there was a slight tendency to hyperglycemia in a case of acute pancreatitis and of cancer involving the pancreas. With polycythemia there was hyperglycemia, on account evidently of the large proportion of reducing substance in the blood corpuscles. With diabetes, the sugar content was abnormally high both fasting and after meals, but the hyperglycemia and the glycosuria did not run parallel; the latter may exist with normal sugar content in the blood. This emphasizes the kidney element in diabetes. In seven typical cases of diabetes, the sugar content ranged from 0.071 to 0.146 per cent. in one patient aged 44 in the course of a month. The range in the total seven was from 0.071 to 0.265 per cent. The great practical importance of the research reported lies in the fact that by examining the blood for sugar in dubious cases of diabetes or when the condition has improved under treatment, we are able by estimation of the sugar content to determine whether the diabetes has actually been conquered or whether it is liable to flare up again on any indiscretion. In such cases the casual and occasional appearance of glycosuria with normal sugar content in the blood may be accepted as a comparatively trivial phenomenon, not fraught with serious consequences.